www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

Bulletin de la Dialyse à Domicile
Home Dialysis Bulletin (BDD)

International bilingual journal for the exchange of knowledge and experience in home dialysis.

(English edition) (version française disponible à la même adresse)

To quote abstracts published in this issus : give names of the authors +title of the abstract Bull Dial Domic + DOI https://doi.org/10.25796/bdd.v6i3.81673 + EuroPD abstract number ##)
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Special issue invited speakers

This special article of the Home Dialysis Bulletin (crossref registered as Bulletin de la Dialyse à Domicile (BDD)) contains the abstract of invited presentations which were sent by the authors before the 2023 EuroPD congress.

The abstracts are available in English and French.

For abstracts of free submissions go to : https://doi.org/10.25796/bdd.v6i3.79903

Many of these abstracts reflect work of particular interest to clinicians and nurses and should be developed into a full article. We therefore encourage authors to write a full article and submit it to the BDD at https://www.bdd.rdplf.org. They will be double-blind peer-reviewed and, if accepted, will be published promptly in both languages to ensure the widest possible dissemination.

The BDD supports the Diamond Open Access Action Plan and follows its model (Diamond OA scholarly Communication Ecosystem); it is therefore free of charge for authors and readers and accessible to all health professionals and patients.

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Ethical considerations: *before submitting their abstracts, all authors were informed that their articles would be published in the BDD and translated into French. Authors retain the copyright of their articles.*

Declaration of interests: *Publication of these abstracts is provided free of charge by the French Registry of Peritoneal Dialysis and Home Hemodialysis. No payment or grant has been received from EuroPD or any third party for this work.*

www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

Abstracts of guest lectures

Our aknowledgement to the invited speakers who provided these abstract of their presentation

CME Course: Clinical Session 1.1

Monday, November 27, 2023, 10:30AM-11:00AM, Level 1 | Auditorium

'Basic Physiology of Peritoneal Dialysis'

Bert Bammens

Nephrologist
UZ Leuven

Knowledge of peritoneal physiology is essential for understanding how peritoneal dialysis works, how to prescribe peritoneal dialysis and how to test the function of the peritoneal membrane. The transport of solutes across the peritoneal membrane follows the general dialytic principles of diffusion and convection. And well-known osmotic and oncotic forces drive the movement of water. Nevertheless, the unique anatomic configuration of the peritoneum and its functional properties need specific modeling to explain solute kinetics and the ultrafiltration process in peritoneal dialysis. The historical two-pore model of membrane transport that assumed that the peritoneal capillary wall could be regarded as a dialysis membrane with small and large pores, had first to be adjusted by adding a third pore. Indeed, the existence of the so-called ultra-small pores helped to better explain the water transport induced by an osmotic transperitoneal gradient. Their structural equivalent are aquaporin-1 channels, abundantly present in the peritoneal capillary endothelial cell walls. Furthermore, the role of the interstitium of the peritoneum cannot be ignored. This is of particular importance in peritoneal pathophysiology, notably in conditions of ultrafiltration failure. More complex modeling such as the distributed model and the serial fiber-matrix model have complemented the three-pore model and support the understanding of peritoneal physiology as well as pathophysiology. In recent years, the theoretical models and their anatomical and ultrastructural background have further improved. Moreover, insight has grown in the role of the endothelial glycocalyx, inflammatory and fibrotic processes, and genetic variations in peritoneal function.

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CME Course: Clinical Session 1.2

Monday, November 27, 2023, 01:30PM-02:00PM, Level 1 | Auditorium

'When to Start Predialysis Education'

Ulrika Hahn Lundström

Senior Consultant
Karolinska Institutet

CKD affects over 100 million people in Europe, 600000 of which are dependent on kidney replacement therapy for their survival. The access to different forms of dialysis, kidney transplantation and conservative care varies in Europe. Home-based dialysis modalities; peritoneal- and home hemo- dialysis have several advantages, although still only a minority of European persons with ESKD opt for home-based dialysis. At the same time, with the predicted "silver tsunami "of more elderly and frail patients, both future logistics and resources call for an increased patient involvement in both choice of their ESKD treatment and goals of care.
Already in 2010, a specifically appointed European Renal Best Practise, ERBP workgroup issued clinical advice on educating the person with ESKD in dialysis modality selection. The need of an individualized care for the person with ESKD were also discussed in a Kidney Disease: Improving Global Outcome, KDIGO conference. Still, there is a considerable variability in ESKD education between centers and countries, and there is no consensus on how advanced kidney care education could be organized.
A majority of European countries lack national guidelines and curriculums to educate healthcare professionals involved in ESKD care. There are some available examples of successful advanced kidney care education programs. It is probably time to learn from each other and the different best practices to develop a framework for not just advanced kidney care education but also to support the healthcare professionals involved.
When CKD is a continuum and ESKD is part of the CKD continuum this opens for several windows for advanced kidney care education:

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www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

In the early pre-dialysis stage for patients recently diagnosed with CKD to help understand their condition, prevent progression and learn about all future treatment options; (transplantation, home dialysis, in-center dialysis and conservative care). Pre-transplant education for potential candidates to learn about the transplantation process, evaluation criteria, potential risks and benefits and post-transplant care. This to empower patients to make well-informed decisions about transplantation as a treatment option, lifestyle considerations and to help identify possible pre-emptive kidney donors. Pre-dialysis to make an informed decision about their future modality, access creation and timing of dialysis initiation. Here also to identify the patients who will likely not benefit from dialysis due to competing risk of death and support them. Post-dialysis for patients who already started dialysis, with support to actively participate in their care, in management of dialysis-related complications, adherence to diet and medication, strategies to improve overall well-being and improve treatment outcomes. Beware of the information deficit in the acute started patients to enhance self-management skills with focus on self-care abilities and possible transfer to home dialysis. Consider PD or home or self- hemodialysis when placing a permanent access in the acute started patients.

In our experience the advanced kidney care education program, in close collaboration with the coordinator nurse is crucial to improve the shared decision making, support patients to opt for home-based therapies and a better, more individualized kidney care.

CME Course: Clinical Session 1.2

Monday, November 27, 2023, 02:00PM-02:30PM, Level 1 | Auditorium

'Periprocedural Care when Creating PD Access'

Anabela Rodrigues

Nephrology Consultant and Associate Professor of Nephrology
University of Porto

Peritoneal catheter implantation for peritoneal dialysis (PD) is a critical procedure, and evidence-based recommendations for peri-procedural care are essential to ensure patient safety and successful outcomes.
Here's a summary of some key recommendations:
1. Assess eligibility and patient expectations
2. Evaluate the patient's peritoneal cavity anatomy, potential contraindications, and comorbidities to determine patient suitability for PD and to elect catheter implantation method
3. Apply an appropriate process of informed consent and shared individualized treatment plan
4. Administer prophylactic antibiotics before the procedure to reduce the risk of infection
5. Consider laparoscopic or mini laparotomy surgical techniques, depending on patient characteristics and surgeon expertise, but promote ambulatory catheter implantation as a default circuit to combine better patient experience and cost-efficiency
6. A dedicated and skilled operator either a nephrologist or surgeon should be apt to adopt recommended surgical steps in catheter implantation
7. Consider Popovich Moncrief technique to improve patient experience in predialysis pursuit
8. Ensure proper exit site care and dressings to reduce the risk of infection and promote safe healing
To manage potential complications, such as catheter infections, leaks, or mechanical issues a timely intervention is crucial and laparoscopic catheter revision is preferable in case of catheter dysfunction.
Adhere to established clinical guidelines and protocols for PD catheter implantation and peri-procedural care and assure adequate quality control processes. Focus also on a qualitative transition to dialysis start, promoting continuous patient preventive education, shared decisions, avoiding hospital admissions and iatrogenic interventions.
These evidence-based recommendations emphasize the importance of patient selection, infection prevention, proper catheter placement, and ongoing patient education and support. The goal is to improve the safety and efficacy of peritoneal catheter implantation for peritoneal dialysis, ensuring better patient outcomes. Healthcare providers should stay up-to-date with the structure and quality indicators according to the latest research and guidelines to continually promote cost-utility and patient safety.

CME Course: Clinical Session 1.2

Monday, November 27, 2023, 02:30PM-03:00PM, Level 1 | Auditorium

'Achieving Adequate Dialysis'

Martin Wilkie

Consultant Renal Physician
Sheffield Teaching Hospitals NHS Foundation Trust

The dose of peritoneal dialysis is augmented by increasing the total drain peritoneal volume – achieved by increasing the size of the dialysis bags and the number of exchanges. It is necessary to evaluate the individual small solute transfer status since when maximal clearance

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www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

is required from a particular exchange it is necessary to understand the optimal length of the dwell necessary to enable equilibration of the relevant solute. Transfer status is measured by the peritoneal equilibration test with particular focus on the 4 hour ratio of dialysate to plasma creatinine concentrations. Urea is a smaller molecule than creatinine and equilibrates more quickly and is easier to clear.
A key component of management included the importance of residual renal function, and the requirement to adjust the prescription to account for its decline over time. It is also necessary to consider the clearance of other solutes such as phosphate and to manage volume status. The later requires adjustment of the glucose concentrations of the dialysis exchanges, length and number of PD dwells, as well as the use of icodextrin where indicated.
Three studies attempted to identify the appropriate minimal peritoneal dialysis dose based on the clearance of small solutes but did not effectively demonstrate an impact of higher dialysis doses on patient survival. These studies are summarized in the table below.

Study	Characteristics
CANUSA 1996(1)	680 incident patients, 2 yr cohort study, residual clearance correlated with survival – was entirely due to the effect of residual renal function
ADEMEX 2002(2)	965 Mexican patients, 2 yr RCT of increased peritoneal clearance compared to control – no difference in outcome
Hong Kong Study 2003(3)	320 pts, 2 yrs randomised to 3 groups of peritoneal clearance – no impact on patient survival

Given the poor relationship between dialysis clearance and mortality the focus has shifted to a more holistic approach as embodied in the ISPD guideline on high quality dialysis prescription(4). This includes a balanced and person centred approach taking account of individual goals, treatment burden, alongside the amount of dialysis required to maintain health. This has lead to an increased interest in incremental dialysis – where the initial prescription is relatively low and flexible with a clear view on minimising intrusiveness of the therapy; treatment is augmented as residual renal function declines. A goal is to enable life participation – which was identified by patients, carers and health care professionals as being a core outcome for people treated with peritoneal dialysis(5).

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CME Course: Clinical Session 1.2

Monday, November 27, 2023, 03:00PM-03:30PM, Level 1 | Auditorium

'Setting up a Train the Trainer Program'

Bettie Hoekstra

Msc Nurse Practitoner
Maasstad Hospital

In my presentation I take the audience with me to the experiences in the Netherlands in training and education in peritoneal dialysis. With an active group of nurse practitioners and dialysis nurses we form a special interest group for PD. One of the main goals of the SIG PD is development or support guidelines and work on projects. We also provide in education and support for PD nurses. Our manual for training and education for PD patients has been revised (2020). For support we have done some research for literature and practice based information. Afterwards we described the process in an article in the Journal of renal care. Several topics have been reviewed. Most important is having a structured program for PD, the use experienced and trained nurses and to evaluate training on a predefined moment. Lessons we have learned are: improve education (always learning); more uniformity in instruction is needed in the Netherlands; sharing knowledge and experience (SIG PD); protocolise assisted PD and acute PD and follow the patient in shared decision making. A lot of items are open for discussion. In my presentation I hope to hear from the audience and discuss possibilities, patient cases an logistic problems.
My message: Important is to see the patients and their needs, educate yourself!

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www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

CME Course: FRENCH SESSION Session 2.1

Monday, November 27, 2023, 10:30AM-11:00AM, Level 3 | Meeting Room 6

'Information Pré-dialyse (Predialysis Information)'

Claudine Dolmin

Head Nurse
Cusl

A pre-dialysis education program, often a legal requirement for most European healthcare systems, is of crucial importance for all people with chronic kidney disease reaching the stage where dialysis becomes unavoidable in the short to medium term.
The primary aim of this educational program is to help patients understand the different treatment options, whether peritoneal dialysis or hemodialysis (the latter can be carried out in a hospital, on self-care dialysis or at home). This enables them to make an informed decision about which dialysis modality is best for them. In addition, the program must offer psychological support to patients, helping them to cope with the stress, anxiety and depression associated with the announcement of the start of dialysis, to demystify the dialysis procedure, and for those opting for home treatment, to consider the logistics associated with this choice. This approach promotes autonomy and self-management of the disease, enabling patients to actively participate in their own care.
For a pre-dialysis education program to be effective, several elements are essential. These include the involvement of all members of the medical team, from nurses and dieticians to dialysis technicians, storekeepers, social workers and psychologists, in order to offer a full range of information and support. Individualized information tailored to the patient's medical, family, social and professional situation is essential, and must be comprehensive, covering the different types of treatment and their organizational arrangements. The educational session, most often on an individual basis, must also enable the family, friends and even the attending physician to be involved in the decision-making process. The environment in which this pre-dialysis education takes place should be open and friendly, so that patients feel comfortable asking questions and discussing their concerns. Patients can also be put in touch with other 'resource' patients already on dialysis to help them finalize their decision. Written documentation should also be provided for patients to consult at home. Finally, a planned follow-up with the referring nephrologist is necessary to assess the patient's understanding and adjust the educational plan accordingly, so that the dialysis treatment chosen by the patient can be started at the right time.
A pro-actively organized, personalized pre-dialysis education program helps to better prepare patients to manage their dialysis modality, to encourage their autonomy by promoting an autonomous choice of modality, and also to reduce the societal costs associated with dialysis.

CME Course: FRENCH SESSION Session 2.1 Title: Home Hemodialysis: A Renaissance

Monday, November 27, 2023, 11:30AM-12:00PM, Level 3 | Meeting Room 6

'Audit in a home hemodialysis unit in Belgium'

Bernard Vo

MD
Clinique Saint-Pierre Ottignies

Despite proven clinical and economical benefits associated with home hemodialysis (HHD), the technique remains underused. Current literature on feasibility and safety of HHD mostly originates from non-European countries. Nonetheless patient's characteristics and technical procedures significantly differ worldwide. This study aims at describing patients, practice patterns, technique survival and complications from a Belgian HHD unit, and supporting HHD as a safe and flexible modality for kidney failure management.
Data from all incident patients starting HHD at Cliniques universitaires Saint-Luc, Brussels, Belgium, during a 6-year period (January 1, 2013 – December 31, 2018) were analyzed. Patient's characteristics were summarized using descriptive statistics for the entire cohort and according to each HHD regimen. We reported technique survival using a competitive risk model estimating cumulative incidence of technique failure with death and transplantation as competing events, and analyzed incidence rates and causes of respite cares, hospitalizations and access complications occurring during follow-up.
Eighty patients (mean age: 47 years; male: 64%; Caucasian: 74%) were included in the analysis. More than half of the patients (51%) initiated HHD with a tunneled central venous catheter (CVC) and 96% performed unassisted HHD. Arterio-venous fistulas (AVF) were exclusively cannulated using the buttonhole technique. At initiation, Standard-frequent HD (47%) and Short-frequent low-flow dialysate HD (34%) were mostly used. Cumulative incidences of technique failure at 1, 2 and 5 years were 10%, 14% and 23%, respectively. Death incidence was 9% at 2 years. No difference between HHD regimens concerning HHD failure was noted (Gray's test: p= 0.50). Incidence rates for respite dialysis and hospitalization were 2.4 and 0.5 per patients-years of HHD, respectively. Standard-frequent HHD and Nocturnal HHD were significantly associated with lower incidence rates of respite dialysis. Overall incidence rate for access complications was 1.14 per access-year. Compared with AVF, incidence rate ratios of all access complications and access-related infections for CVC were 4.3 (95% CI: 3.1-6, p< 0.01) and 4.4 (95% CI: 2.1-10, p< 0.01), respectively. Buttonhole cannulation was complicated by 0.26 infections per 1000 AVF-days.

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www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

The present study reports data from a Belgian cohort of 80 incident HHD patients benefiting from diverse regimens and characterized by relatively young age, few comorbidities and short dialysis vintage. Being listed for transplant, a marker of apparent good healthy state, is associated with better technique survival, while more intensive HHD techniques are not grieved with more complications. We report additional information about HHD in Europe and confirm previous data on applicability of HHD with encouraging technique and patient's survivals.

CME Course : FRENCH SESSION Session 2.2 Title: What's New in Peritoneal Dialysis?

Monday, November 27, 2023, 01:00PM-01:30PM, Level 3 | Meeting Room 6

'Fragility of the Elderly PD Patient in French-speaking Belgium: What Impact on Survival?'

Catherine Gerontitis

Geriatrician
Centre Hospitalier du Bois de l'Abbaye

To cope with the increasing prevalence of chronic renal failure, peritoneal dialysis (PD) is the extra-renal purification technique of choice. Little is known about the factors associated with survival in elderly patients starting PD. This retrospective study includes patients, aged ≥ 60 years, incident to PD between 01/2000 and 01/2021 in the Belgian French-speaking nephrology registry.
The impact on survival of the following variables was analyzed univariately: initiation date, age, gender, pre-dialysis follow-up, scheduled initiation, 6 cardiovascular comorbidities, 5 other comorbidities and 4 functional limitations. Multivariate Cox regression complemented these significant univariates. Survival was analyzed using the Kaplan-Meier method.
The cohort comprised 1,183 patients with a mean age of 73.9 years [60; 96]. Median survival was 30.5 months [0.07; 237]. In multivariate analysis, advanced age was an unfavorable factor for survival, whereas walking autonomy, pre-dialysis nephrological follow-up and arterial hypertension were factors significantly associated with better survival. Median survival is reduced to 18 months for a patient aged ≥ 85 years (HR 4.080 [1.540-10.811]) compared with patients aged < 65 patients. Walking independence doubled median survival(HR 0.409 [0.268-0.625]).
In conclusion, walking autonomy, pre-dialysis follow-up and BP are important factors for survival.

CME Course: FRENCH SESSION Session 2.2

Monday, November 27, 2023, 01:00PM-01:30PM, Level 3 | Meeting Room 6

'Can I do the PD if I have a Cat or a Dog?'

Philippe Delaey

Medical Doctor
Cliniques Universitaires Saint-Luc

Pets are present in almost half of all households in Europe, and this trend is increasing in several countries. So, it's not surprising to find them alongside a large number of end-stage renal failure patients who have to start dialysis.

Several cases of peritonitis of zoonotic origin have been reported in patients undergoing peritoneal dialysis (PD), leading some clinicians to discourage this dialysis technique among pet owners1. Close human-animal contact and the desterilization of dialysis equipment are the main causes.
The recent prospective PDOPPS study investigated the association between having a cat and/or dog at home and the incidence of peritonitis in a large cohort of PD patients2. Among 3655 patients from 8 different countries, there were 1347 cases of peritonitis over a median follow-up time of 14 months (annual peritonitis rate of 0.29 peritonitis per patient per year). There was no significantly increased risk of peritonitis with or without exposure to a pet in the home. However, in patients with multiple pets (cats and dogs), there was an increased risk of peritonitis compared with patients without pets (HR 1.45 (95% CI: 1.14-1.86).

These results are therefore reassuring with regard to the presence of a pet and the practice of home peritoneal dialysis. This dialysis modality should therefore not be discouraged in these patients, but requires certain preventive measures.

The ISPD recommendations for the management of peritonitis in 2022 stress the importance of additional precautions to prevent peritonitis in the presence of pets at home (1C). They also suggest that pets should not be allowed in the room where PD exchanges take place and where dialysis equipment and machines are stored (2A).

The nursing and care teams therefore have an important role to play in terms of prevention, by questioning the patient about the presence of a pet in the home and insisting on hygiene and sterility measures where appropriate. It's not unusual for nursing staff to be greeted at home by one or two pets. These visits can be an opportunity to raise the issue and inform the patient about the risk of peritonitis and the

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https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

precautions required.
In this way, by keeping their four-legged friends away from the dialysis equipment, PD patients can carry out their peritoneal exchanges with peace of mind.

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CME Course: FRENCH SESSION Session 2.2

Monday, November 27, 2023, 02:00PM-02:30PM, Level 3 | Meeting Room 6

'Variations in PD' liquid mampling Methods'

Marie-Christine Padernoz Lavallee

Infirmière Diplômée D'etat
RDPLF

ISPD guidelines suggest that the rate of aseptic peritonitis should not exceed 15% [1]. The RDPLF database shows a higher rate of 18.7% since 2020. In 2018, a study conducted by the RDPLF had shown considerable variation between different centers, with rates of sterile PD-related peritonitis ranging from 6% to 50% [2] or between countries [3]. In light of these findings, a study was conducted between September 2022 and July 2023 to determine if a specific PD fluid collection procedure could reduce the percentage of sterile cultures in cases of peritonitis.
During this period, 1099 peritoneal infections were recorded in the RDPLF database. A questionnaire was systematically sent to nurses and physicians at the centers involved. 601 responses were received.
One of the main findings of this survey is that not all teams follow a standardized procedure. When protocols do exist, they are not always complete, well known, or consistently applied by the entire team.
The results of the study show that in automated peritoneal dialysis, in univariate analysis, several factors influence the rate of negative cultures: the type of specimen, the use of drainage residue, the method of specimen processing in the laboratory, and the culture technique used. However, in multivariate analysis, only the fact that blood agar inoculation was performed by the nurse proved to be significant in reducing the rate of negative cultures. No significant factors were identified in continuous ambulatory peritoneal dialysis (CAPD). The weakness of this study is the low response rate, which did not allow us to highlight the advantage of a particular procedure at the time of sampling. In addition, the specific technique used by each laboratory was not always known and may have masked the influence of the sampling procedure.
The study highlights significant variation in nurses' sampling methods, not only between different centers, but also within the same team. This is a major concern in terms of consistency and quality of care.
To limit the percentage of negative cultures in cases of true peritoneal infection, it is imperative to have a clearly defined care protocol that is universally understood and applied by all team members. In addition, the laboratory culture technique must be rigorous and discussed with the medical and nursing team in accordance with published recommendations. It is recommended that aerobic and anaerobic blood culture bottles be collected on site and that a complete suspect dialysate bag be sent to the laboratory for centrifugation and inoculation of the centrifuge pellet. It is important to verify with the laboratory that cultures can be stored at two different temperatures for up to 7 days to allow growth and identification of difficult-to-detect or slow-growing organisms.
In conclusion, it is essential to establish and follow standardized protocols to ensure the reliability of cultures and optimize the quality of peritoneal dialysis care.

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www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

Parallel Session 1: Nutrition, Inflammation and Volume Management

Tuesday, November 28, 2023, 8:00AM-9:30AM, Level 1 | Auditorium

'Changes in Body Composition with Peritoneal Dialysis'

Andrew Davenport

Professor of Dialysis & ICU Nephrology
UCL Department of Renal Medicine
Royal Free Hospital
University College London

The majority of peritoneal dialysate solutions contain supraphysiological concentrations of glucose ranging from 75 mmol/L to 225 mmol/L. As such there have been concerns that glucose absorption from dialysates may lead to fat weight gains, worsening diabetic control and changes in lipid profiles, with the IMPENDIA /EDEN trials reporting that reducing glucose exposure by substituting isomaltose (icodextrin) and a 1.1% amino acid dialysate exchanges reduced serum triglycerides, very low-density-lipoprotein cholesterol, and apolipoprotein B (apoB). On the other hand, increased intra-abdominal pressure may have a mechanical effect on the stomach and limit food intake and reduce appetite by increasing reflux oesophagitis. There have been a number of observational studies reporting on patients starting continuous ambulatory peritoneal dialysis using all glucose containing dialysates, with some reporting weight gains and others no change in weight. Some years ago, the Dutch NECOSAD study attempted to randomise chronic kidney disease patients starting dialysis to low-flux haemodialysis or peritoneal dialysis. Although this study failed to randomise sufficient numbers of patients to low-flux haemodialysis or peritoneal dialysis to allow a comparison, the study then became observational and followed patient initiating dialysis. The NECOSAD study reported that both haemodialysis and peritoneal dialysis patients gained weight after starting dialysis, but there was no difference in weight gains between he two modes of dialysis.
Studies reporting changes in body composition of peritoneal dialysis patients initiating dialysis can be confounded by patients being encouraged to change from a protein restricted diet prior to starting dialysis to a more liberal diet to compensate for protein losses with dialysis, and changes in residual renal function. Although there has been much discussion as to when patients should start dialysis, especially with peritoneal dialysis, to ensure a planned rather than an urgent start, there is variation between countries and centres. Thus, it is important to allow time for patients to adapt to peritoneal dialysis before studying changes in body composition. As the majority of peritoneal dialysis patients do not regularly exercise, then weight gains generally will be of fat mass rather than lean body tissue. Studies which have allowed for adaptation have reported that even when using one icodextrin exchange patients will gain fat weight, but also loose lean body tissue with time, with an association between fat weight gain and lean tissue loss. This is thought to be due to a combination of peritoneal glucose absorption, peritoneal protein losses, reduction in dietary protein as residual renal function declines and an inactive lifestyle. Although other studies, which similarly allowed for an adaptation period reported no overall effect on weight, but again noted an increase in fat weight and loss of lean body tissue. Most of these studies excluded patients with acute hospital admissions and peritonitis, whereas when patients with peritonitis and also volume overloaded patients were included then patients were found to have lost both total body weight and lean body mass.
This presentation will discuss changes in body composition in peritoneal dialysis patients, the effect of peritoneal glucose absorption, peritoneal protein losses, episodes of acute inflammation, and life-style.

Parallel Session 2: Home HD

Tuesday, November 28, 2023, 8:15AM-8:30AM, Level 4

'Home Therapies: What do the New KDIGO Recommendations Tell Us?'

Martin Wilkie

Consultant Renal Physician
Sheffield Teaching Hospitals NHS Foundation Trust

The KDIGO Home Therapies Controversies conference, held virtually during May 2021, was co-chaired by myself and Jeff Perl. It explored the specific and local factors that impact home dialysis uptake - its conclusions were published early in 2023(1). Discussions drew on the expertise of a comprehensive group of contributors including patient partners. Four breakout groups tackled the following questions (conference agenda and resources available here).
1. Clinical outcomes of home dialysis by modality compared with facility-based hemodialysis
2. Patient-reported outcomes, including quality of life and patient experience, by home dialysis modality compared with facility-based hemodialysis.
3. What are the quality and performance metrics used to evaluate home dialysis programs?
4. What are the metrics to measure the incremental impact (benefits and adverse outcomes) as a result of the expanding use of home dialysis therapies?
The conference report lays out the factors that lead to either center-based or home-based dialysis – including health care system, clinic or

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www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

facility, and individual. Emphasis was placed on the role of iterative, high quality education and support for healthcare professionals, patients, and care-partners to enable shared decision making in assessing kidney failure treatment options. Dialysis modality choice should be made with consideration of quality of life, life goals, clinical characteristics, family or care-partner support, and living environment.
There was consensus that clinical outcomes are comparable among existing dialysis modalities, although patient quality of life may be better with home dialysis across certain domains. However residual controversies included that a stronger evidence base needed to support interventions purported to increase the use of home dialysis; or how to measure measure the success of home dialysis growth as use expands to individuals previously considered ineligible. Research priorities were presented including evaluating core outcomes of critical importance and relevance to all home dialysis stakeholders.
Increasing home dialysis therapy use requires the following components – specific healthcare policy (such as home dialysis–preferred policies), directed fiscal resources, provider incentives and importantly accountability, as well as real-time measurement of impact with feedback to contributing teams. The controversies conference reaffirmed the need for advocacy and efforts to ensure equitable access to home dialysis to all individuals in need of kidney replacement therapy globally.

Reference

1. Perl J, Brown EA, Chan CT, Couchoud C, Davies SJ, Kazancioglu R, et al. Home dialysis: conclusions from a Kidney Disease: Improving Global Outcomes (KDIGO) Controversies Conference. Kidney Int. 2023;103(5):842-58.

Parallel Session 2: Home HD

Tuesday, November 28, 2023, 8:30AM-9:00AM, Level 4

'The Cardio-Vascular Benefits of Home HD: More Frequent or Longer Sessions?'

María Fernanda Slon Roblero

Consultant Nephrologist
Hospital Universitario De Navarra

The global burden of chronic kidney disease (CKD) is substantial and increasing worldwide. Cardiovascular disease is a leading cause of death in patients with CKD and is therefore a major focus of attention in this population. While traditional and nontraditional risk factors are associated with cardiovascular disease in patients with earlier stages of CKD, a number of uremia-related factors magnify this risk in patients with advanced CKD, especially in the dialysis-dependent population.
Currently, in-center conventional hemodialysis (HD) prescription (thrice-weekly for 3 to 5 hours per session) continues to be the most widely used dialysis prescription worldwide. However, there is increasing evidence that conventional HD is the minimum treatment necessary to maintain life but is inadequate in preventing dialysis-related complications and improving patient outcomes. Some of the reasons for these limited and unsatisfactory results may be due to the persistence of the long intradialytic interval, strongly associated with increased risks of death, hospitalization, and cardiovascular events. Additionally, its intermittent nature has limited efficacy in the elimination of uremic toxins and volume control. Therefore, our efforts should focus on identifying alternative dialysis options to be used in our patients in an attempt to improve these unsatisfactory outcomes.
Intensive HD involves longer and/or more frequent HD sessions compared to conventional HD. While there are several potential benefits associated with this approach, there is a growing body of evidence supporting the cardiovascular advantages of this prescription, which can enhance our patient outcomes. Improved cardiovascular outcomes can be justified by these factors: 1. Increased frequency reduces the long interdialytic interval, leading to more physiological clearance of solutes and water, avoiding large electrolyte and volume shifts, thus reducing the risk of arrhythmias. 2. Increased frequency and treatment duration improve the clearance of uremic toxins other than urea, which have different kinetics requiring more first hours of treatment or longer sessions for effective removal. 3. Prolonging HD sessions not only enhances the removal of uremic toxins but also significantly improves volume control, resulting in better tolerance of HD sessions. Therefore, it is easy to understand why extending treatment time or increasing its frequency is an effective approach to achieve greater uremic toxins removal while addressing volume control and enhancing the tolerance of dialysis sessions; thereby reducing dialysis-related morbidity and mortality, lowering cardiovascular risk in our dialysis population. Achieving this balance may be challenging with conventional HD prescriptions, but it becomes more feasible with more frequent or longer HD sessions.
Home HD provides an excellent environment for more intensive dialysis regimens with a person-centered approach by allowing greater flexibility of schedules, adapting dialysis to the patient's daily life activities, improving patient rehabilitation, and enhancing health-related quality of life. In addition to reducing the economic burden, streamlining healthcare costs. Therefore, given the favorable cardiovascular outcomes and the advantages of optimizing patients' quality of life, intensive Home HD should be considered as an available strategy to improve the long-term outcomes of our patients on dialysis.

Plenary Session 2

Tuesday, November 28, 2023, 09:35AM-10:25AM, Level 1 | Auditorium

'What Can we Learn from Large Databases'

www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

Annie-Claire Nadeau-Fredette

Nephrologist, Associate Professor
Hôpital Maisonneuve-Rosemont, Université de Montréal

In an era during which patient-centered care is prioritized, it may seem irrelevant to study large database and registries. Indeed, agglomerate data rarely inform on individual patient-level outcomes. However, despite their limitations, registry studies are an essential component of current research and should not be disregarded by clinical teams. During this presentation, we will discuss key areas where large databases can be useful, especially in regards to home dialysis.

First, international comparisons, such as those provided in the United States Renal Data System (USRDS) reports, can inform on best countries in regards to home dialysis and set realistic targets from quality improvement. Comparison of prevalent population treated by different dialysis modalities are often cite in publication and used for educational purpose. This may also drive country-level initiatives, such as the Advancing American Kidney Health Executive order aiming to increase use of kidney transplantation and home dialysis incidence in the Unites States. International comparisons are also important to set targets of optimal care and best practices, which inform current and future guidelines recommendations.
Second, country or registry-level studies are key resources to identify regional or center-level variability pattern, which may help to identify champion centers and understand how different patient- and center-level characteristics can improve outcomes. On that note, work from the Australia and New Zealand Dialysis and Transplantation Registry (ANZDATA) has provide important knowledge on the center-level variability of PD-related outcomes, including peritonitis risk and outcomes, and risk of technique failure (including death and transfer to hemodialysis).

Third, multi-registry studies, such as the work from the INTEGRATED group, have highlighted areas of vulnerability during kidney failure care, including the early period after transition from PD to HD. In this multi-registry study, very high mortality risks were observed over the first 60 days after transitioning from PD to HD. In addition, ongoing work from this group will inform on international differences in home dialysis uptake, highlighting differences in patterns of early transfers from HD to home dialysis.
Finally, combining large database outcomes with organizational- and healthcare level data on access to care and programs can be hypothesis generating, which is an important step for both research and quality improvement / implementation science initiatives. Although database work has historically been poorly transmitted to patients living with kidney disease, it will likely become important over the next years as access to data is facilitate. In conclusion, large database can inform several nephrology stakeholders, including administrators, researchers, clinicians and eventually patients and their community.

Parallel Session 3: Tailored Approach to Therapy

Tuesday, November 28, 2023, 11:40AM-12:00PM, Level 1 | Auditorium

'A Geriatrician in the Renal Clinic: Different Conversations, Different Choices'

Virginia Aylett

Consultant in Medicine for the Elderly
Leeds Teaching Hospitals Trust

The demographic of people approaching dialysis is changing, with an increasingly ageing population who are multimorbid and frail. Data from our Unit showed that a substantial proportion of patients over 70 who chose dialysis suffered a significant functional decline since making their choice or died from other illnesses before starting treatment. It was therefore felt that an expert in frailty and co-morbidity might be a beneficial addition to the Unit.
We initiated routine, embedded, consultant geriatric review of a selected group of patients in our renal low clearance (pre-dialysis) clinic alongside our already-established palliative care service to support decision-making about treatment options for end stage kidney disease. Through a series of PDSA cycles we were able to refine referral criteria to the service. Short and long-term outcomes were followed for every patient seen in clinic.
Starting in 2018, 77 patients were reviewed before suspension enforced by the Covid-19 pandemic in March 2020 and a further 56 since resumption between July 2021 and January 2023. We present the short-term results of all 133 patients immediately following geriatric review, plus 3 year outcome data for the first 77 patients.
92% of patients (mean age 78 [range 62-92]; 70% male) referred to the service had initially opted for Renal Replacement Therapy (RRT) or were undecided about their future. From this group, 55% opted for Conservative Management (CM) after multidimensional holistic assessment by a Geriatrician. This was accompanied by an increase in DNACPR (do not attempt cardiopulmonary resuscitation) and Advance Care Plan decisions, as well as referrals to Falls, Continence and Memory Services.
Three years after clinic review, the survival rate in the group choosing RRT was 46%, and in the CM group was 33%; the majority of deaths were unrelated to renal failure, and ANOVA analysis indicates that clinical frailty scores impacted outcome more than treatment choice.
Economic assessment of the service indicates that it is cost-beneficial based on savings from fistula creation alone.
The majority of older people in a Low Clearance Service never start RRT, regardless of which treatment modality they choose. The addi-

www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

tion of a Geriatrician to the service is cost-effective and associated with an increase in decision-making (including DNACPR and advance care plans) and a reduction in planned RRT. Outcomes in this selected group suggest little difference in survival among those choosing RRT vs CM, and that frailty is more indicative of prognosis than treatment choice.

Parallel Session 4: Home HD

Tuesday, November 28, 2023, 11:00AM-11:20PM, Level 4

'Home HD and Catheters: Friend or Foe?'

Bert Bammens

Nephrologist
UZ Leuven

High-quality vascular access is a prerequisite for hemodialysis and this evidently holds true for hemodialysis in hospital as well as at home. From a long history of clinical data in in-center hemodialysis, we know that an arteriovenous fistula is the preferred access over a central venous catheter and even – albeit to a lesser extent – over an arteriovenous graft. The reasons for the better statistics of arteriovenous fistulas are multiple: access flows are on average better, dialysis efficiency likewise, there is a lower failure rate and – last but not least – infection rates are lower. Data confined to home hemodialysis cohorts, appear to confirm what is seen in in-center hemodialysis. Patient survival rates are superior in combined groups of patients with arteriovenous fistula or graft as compared to patients with central venous catheters. As to technique survival, the findings are more positive for arteriovenous access as well, but not unequivocally significant in all analyses.
Nevertheless, a good arteriovenous fistula needs time after its creation to come to full function. And considering the many comorbidities of patients with kidney disease which also influence the quality of their vascular beds, not every meticulously created arteriovenous anastomosis evolves into a well-functioning arteriovenous fistula. Moreover, repetitive punctures are needed, particularly in the setting of frequent home HD, and this may limit its adoption by patients for fear of pain and other perceived thresholds to self-cannulate. It is of note that arteriovenous fistulas and grafts also ask for higher cardiac output and may as such have a negative impact on cardiac function with time. Some may argue that these cardiac long-term effects should be put against the earlier-mentioned advantages of fistulas vs. central venous catheters. From all this, the question whether the use of central venous catheters has a place in home HD is indeed relevant and a balanced approach is needed.

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2. Agarwal et al. Adv Chronic Kidney Dis 28: 164-169, 2021
3. Pauly et al. Am J Kidney Dis 73: 230-239, 2018
4. Perl et al. Am J Kidney Dis 67: 251-259, 2016

Parallel Session 4: Home HD

Tuesday, November 28, 2023, 11:20AM-11:40PM, Level 4

'The Many Advantages of the Buttonhole Technique for the AVF Punction'

Laura Labriola

Head Of Clinic
Cliniques Universitaires Saint-Luc

The early enthusiasm for buttonhole (BH) technique of arteriovenous fistulas (AVF) was triggered by its potential advantages over the standard rope-ladder technique. These advantages (including fewer missed sticks, less pain, faster hemostasis after needle removal, fewer hematomas and aneurysms, lower intervention rate, and, ultimately, an increase of AVF survival) were postulated on the basis of observational studies with a short follow up. Nevertheless the improvement in many of these outcomes was not confirmed by all the RCTs. That being said, the two biggest RCT showed either better general AVF outcomes or no difference with buttonhole, in comparison with standard cannulation. None of these two studies documented worse outcomes, with the exception of an increase of AVF-related infections in one of them. Moreover, the European Renal Best Practice guidelines (2019) suggest either BH or ropeladder techniques according of the level of experience of cannulators.
We present our experience: i- in our home HD program and low-care satellite unit, where BH method has been used for 25 years and is still used, without increased infectious risk; ii- in our busy, in-center HD unit, where all patients have been switched to BH in 2004-2005. This extended, almost entirely prospective, 22-year follow-up started in 2001 with all AVFs still punctured with RL technique, demonstrate that the constant and rigorous respect of a maximized hygiene protocol implemented by vascular access coordinators allowed to dramatically reduce the incidence of infectious events to virtually zero in the last years. Importantly, the incidence of infections with BH became comparable to that observed with the rope-ladder technique, which has never been documented so far. This underlines that

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www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

the constant field work and the strong leadership of the head nurses in ensuring education and supervision of the staff for the strict respect of each step of the BH procedure make it possible to reach this goal.
To conclude, we present a critical view concerning BH, emphasizing that many questions remain open, and that nowadays, according to our own experience, the recommendation to abandon BH appears premature and impulsive.

However, several interventions can be used to mitigate the infectious risk associated with buttonhole technique.
What this study adds:

• This extended, prospective, 12-year follow-up of our previous pre (rope-ladder)-post (buttonhole) comparison (2001-2010) in the same busy, in-center hemodialysis unit shows that the constant respect of a reinforced hygiene protocol implemented by a new vascular access coordinator allowed to dramatically reduce the incidence of infectious events to virtually zero.

• Importantly, the incidence of infectious events with the buttonhole technique became eventually for the first time comparable to that observed with the rope-ladder technique.
What impact this may have on practice or policy?

• Buttonhole is a very demanding technique of cannulation for native AVFs requiring strict respect of every step of the procedure to avoid severe infectious complications.

• Only the implementation of reinforced aseptic protocols by trained staff, together with regular audits organized by head nurses and/or vascular-access coordinators, allow to reach this goal over the long term.

This underlines again the crucial role of a strong leadership in the nurses' staff, leading to the consistency and uniformity in the implementation of the aseptic procedures.

Parallel Session 5: Value Based Healthcare

Tuesday, November 28, 2023, 02:00PM-02:30PM, Level 1 ! Auditorium

'Cost Effectiveness of Home Based Therapies - Lessons from Inter-CEPt'

James Fotheringham

Consultant Nephrologist
Sheffield Teaching Hospitals NHS Trust

In addition to benefits in person-centredness, quality of life and experience, many advocate home dialysis for people with kidney failure because it is more "cost effective". InterCEPt, a mixed methods study designed to reduce the variation in home therapy uptake in the UK, performed contemporary analyses to understand the cost-effectiveness of home dialysis compared to centre-based dialysis. Barriers to home dialysis update were identified through ethnographic work and the size of their effects estimated using survey and registry data. A health economic model was able to estimate the health benefits and cost savings having addressed these barriers. We learned the following lessons:
1. A broader definition of value, and its perspective, than is routinely used in health economics is expected by some stakeholders. As a consequence, the value of home therapies will be underestimated..
2. Much of the existing literature would have to be incorrect for home dialysis to not be a cost-effective use of resources (cost saving and/or gains in health), compared to centre-based haemodialysis. However, how these health-gains manifest across the lifetime of the person with kidney failure can lead to counterintuitive results.
3. A health economic model can tell you a lot that has nothing to do with money: it models the journey of a person with kidney failure. This is likely to be more important to your audience.
4. Overcoming barriers with clearly defined interventions could lead to significant health benefits and enable greater access to home dialysis, but if people live longer they do cost more. Considering "cost-effectiveness" rather than just "cost", and factoring societal attitudes to expensive therapies like dialysis could be important in some geographies.

The health economics in InterCEPt demonstrates that the kidney community can design use-orientated health economic models to assist stakeholders in advocating for home dialysis and maximising access to these therapies.

Parallel Session 6: Clinical Cases Low Flow HHD

Tuesday, November 28, 2023, 02:00PM-02:20PM, Level 4

'Home HD in a Patient with Cardiac Failure'

María Fernanda Slon Roblero

Consultant Nephrologist
Hospital Universitario De Navarra

During this session, we are going to discuss the clinical case of a patient who is dealing with both chronic kidney disease and chronic heart failure. Over time, this patient has become unresponsive to diuretic treatment, necessitating the initiation of hemodialysis (HD) as a

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www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

kidney replacement therapy. Initially, the patient was prescribed conventional HD three times a week for four and a half hours. However, the patient experienced poor hemodynamic tolerance, leading to persistent volume overload and heart failure symptoms.
Within the constraints of thrice-weekly in-center HD, there was a need for a higher Ultrafiltration rate (UFR) to remove excess fluid in this patient with fluid overload. Nevertheless, a higher UFR posed risks of cardiac and organ system impairment during dialysis, along with intra-dialytic hypotension, thereby increasing cardiovascular morbidity and mortality. Both organ system impairment and symptomatic hypotension contributed to longer post-treatment recovery periods, diminishing the quality of life and potentially causing patients to discontinue treatment prematurely or skip sessions altogether. Incomplete sessions exacerbated fluid overload, creating a cycle of unfavorable patient outcomes and adverse events. Because this situation, the patient received adequate information about the options available for him to improve hemodynamic tolerance to HD treatment in his heart failure situation: lengthening the time of sessions by nocturnal HD or increasing the frequency by short daily HD. After a process of shared decision-making, the patient and his wife decided to perform short daily home HD (HHD) in an attempt to improve his situation. Following a proper training, this patient transitioned to HHD with a short frequent prescription. This change resulted in reduced interdialytic weight gain, a lower ultrafiltration rate, improved hemodynamic tolerance, and, most importantly, a significant alleviation of symptoms.
HHD provides an excellent environment for conducting more frequent HD sessions without disrupting the infrastructure or organization of a HD unit. By directly addressing chronic fluid overload, frequent HD can significantly enhance both cardiovascular outcomes and the quality of life for our patients.
This case serves as an illustration of one of the main benefits of increasing the frequency of HD sessions, which should always be considered for patients struggling with persistent volume overload despite treatment, with the goal of improving not only long-term outcomes but more importantly, their quality of life.

Parallel Session 7: Basic Science: Peritoneal Membrane Function

Tuesday, November 28, 2023, 02:00PM-02:20PM, Level 3 | Meeting Room 6

'An Update on miRNAs in PD'

Donald Fraser

Director
Cardiff University

MicroRNAs (miRNAs) are short, non-coding RNAs that act as an important class of regulator of gene expression. miRNAs act across networks of genes, and are fundamental to many biological processes. They are closely regulated, and changes in expression of various miRNAs can be an important signifier of pathology. miRNAs are also stablised through various mechanisms in body fluids, and they can be detected using highly sensitive techniques for measuring nucleic acids. These characteristics are advantageous for miRNAs as biomarkers. Here, I review work on miRNAs in the peritoneum, where work from our and other laboratories highlights the importance of miRNAs as determinants of pathology in the peritoneum, and their potential as sentinels for peritoneal infection, membrane change, and other pathology.

Parallel Session 7: Basic Science: Peritoneal Membrane Function

Tuesday, November 28, 2023, 02:00PM-02:20PM, Level 3 | Meeting Room 6

'Unravelling Molecular Mechanisms of Vascular Disease in PD'

Maria Bartosova

Postdoc
University Hospital Heidelberg

Cardiovascular disease (CVD) is the leading cause of death worldwide and patients with chronic kidney disease (CKD) are at particularly high risk due to inflammation, endothelial dysfunction and calcification. Peritoneal dialysis (PD) increases the CVD risk due to the resorption of glucose and vasculotoxic glucose degradation products (GDP) from the dialysis fluid. The risk of dying from CVD is 40× higher in PD patients than in the age-matched general population and remains high after kidney transplantation (KTx) due to dyslipidemia associated with immunosuppressive therapy. Standardized Outcomes in Nephrology in Peritoneal Dialysis (SONG-PD) initiative categorized improving CVD outcomes to be of critical importance. To achieve this goal, comprehensive knowledge on molecular mechanisms underlying vascular pathophysiology is necessary to serve as basis to identify novel therapeutical approaches.

CKD in children develops mostly due to inborn malformations of kidney and urinary tract and they do not suffer from traditional CVD risk factors such as diabetes, aging and life style related risks. Vessels from pediatric patients represent unique material to study molecular machinery driving CVD in CKD, PD and after KTx. Omental arterioles obtained from children with normal renal function, with end stage kidney disease (CKD5), on peritoneal dialysis with neutral pH, double-chamber PD fluids with low glucose degradation product content and on PD who were treated with acidic pH, single chamber PD fluids with high concentration of GDP were used for whole transcriptome

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www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

and proteome analysis. These small resistance arterioles which define blood pressure were microdissected from the surrounding fat tissue, thus reflecting the systemic changes and not local effects of PD fluids. Pathway analysis was performed on multi-omics level followed by independent validation. Compared to CKD5, low GDP PD resulted in activation of endothelial complement system. Locally, in peritoneal arterioles, activation of C1q and of terminal complement complex was correlated with individual dialytic glucose exposure and with the degree of arteriolopathy and phosphorylation of arteriolar pSMAD2/3. SMAD-TGFß signaling has been linked to CVD and is a well described mediator of PD induced peritoneal fibrosis. Fibrosis and vasculopathy are more pronounced when high GDP PD fluids are applied in children and in adults. On molecular level, miR7641 was identified to drive peritoneal vasculopathy via SMAD3 activation. In arterioles from children on high GDP fluids, pSMAD2/3 was increased and apoptosis pathways were activated resulting in decreased abundance of nuclear structural lamina and higher Casp3. The endothelial number correlated with 3,4 DGE exposure, the major toxic glucose degradation product in PD fluids, arteriolar endothelial deposition of advanced glycation end products was 4-times higher. Endothelial integrity was impaired, cytoskeleton and tight junction proteins reduced. The later is modifiable, e.g. by alanyl-glutamine, a PD additive ensuring endothelial sealing and reducing peritoneal protein loss.

Taken together, molecular characterization of vascular pathophysiology is a promising approach in identifying therapeutical targets for improving CVD outcome in PD population.

Parallel Session 8: Symptom Management

Tuesday, November 28, 2023, 04:00PM-04:30PM, Level 1 | Auditorium

'Fatigue'

Anabela Rodrigues

Nephrology Consultant and Associate Professor of Nephrology
University of Porto

Fatigue is a common and distressing symptom in patients undergoing dialysis for end-stage renal disease (ESRD). It significantly affects their quality of life and can be both a symptom of underlying health issues, some of them modifiable, and a patient-reported outcome measure for assessing treatment effectiveness.
Measuring fatigue is a complex process because it is a subjective experience, and different individuals may describe and experience it differently. However, several standardized tools and methods can be used to assess and quantify fatigue in a more objective and consistent manner. Self-reported questionnaire such as functional assessment of chronic illness therapy – fatigue (FACIT-F) might be applied.
Patients' self-reported fatigue levels can help tailor treatment plans and supportive care.
Causes of fatigue that might benefit from intervention include anemia, metabolic acidosis , functionality status. However also coexisting multimorbidity, malnutrition, psychosocial factors, and other multifactorial inducers of fatigue might be mitigated.
Several dimensions can be elected to improve fatigue:
1. Encouraging regular physical activity or offering exercise regimens
2. Correcting anaemia
3. Ensuring proper nutrition
4. Optimizing dialysis focused on eviction of hypervolemia, dehydration and metabolic acidosis
5. Addressing sleep disturbances
6. Empowering patients in their self-care
7. Promoting counselling and support groups to mitigate depression.

In summary, fatigue in dialysis patients is a multifactorial issue with a significant impact on their well-being. It serves as a valuable though challenging patient-reported outcome measure, reflecting the effectiveness of treatment and overall quality of life. Dialysis Units structure and financing models must be updated in case Health policies align with such patient centred approach that goes well beyond the dialysis procedure.

Parallel Session 8: Symptom Management

Tuesday, November 28, 2023, 04:30PM-05:00PM, Level 1 | Auditorium

'Pruritus in Advanced CKD and on Dialysis'

Severin Schricker

Senior Physician
Robert-Bosch-Krankenhaus

This presentation provides a focused examination of the practical strategies for manageing Chronic Kidney Disease (CKD)-associated pruritus in peritoneal dialysis patients. In summary, this presentation is designed as a practical guide for healthcare professionals dealing with CKD-associated pruritus in peritoneal dialysis patients. Attendees can expect to gain actionable knowledge to enhance their approach

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www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

to CKD-associated pruritus within the peritoneal dialysis setting.
CKD-associated pruritus, commonly known as itching, is a prevalent and burdensome complication in patients with end-stage renal disease (ESRD), significantly impacting their quality of life.
The presentation provides an overview of the epidemiologiy and pathophysiology of CKD-associated pruritus, emphasizing the complex interplay of uremic toxins, inflammation, and neural pathways. This foundational understanding sets the stage for exploring how these mechanisms are particularly relevant in peritoneal dialysis, shedding light on the distinctive aspects of pruritus management in this patient population.
Further the importance of employing standardized tools to evaluate pruritus, considering both its intensity and the impairment it imposes on daily activities is underscored. This comprehensive evaluation is crucial in tailoring individualized interventions and tracking the effectiveness of various management strategies.
The (pharmacological) management of CKD-associated pruritus will be the main focus during the lecture. Non-pharmacological interventions are also worth significant attention. The lecture will highlight the role of proper skin care, including emollients and avoidance of irritants, in managing pruritus. Moreover, the potential benefits of complementary therapies for symptom control are discussed, acknowledging their growing interest.
Antihistamines, gabapentinoids, and perspecitvely opioid receptor agonists are among the therapeutic options explored. The lecture will provide an insight into the evidence supporting the use of these agents, emphasizing the need for a cautious approach given the potential side effects and variable response rates. The practical considerations and potential drawbacks are presented to guide clinical decision-making.
The lecture will also highlighting the importance of ongoing research in this field. The lecturer encourages healthcare professionals to stay informed of emerging therapies and advancements in our understanding of pruritus pathophysiology within the next years.

Parallel Session 8: Symptom Management

Tuesday, November 28, 2023, 05:30PM-06:00PM, Level 1 | Auditorium

'Patient Empowerment a Necessary Condition'

Edgard Eeckman

President
Patient Empowerment

The concept of Patient Empowerment is not optional and has only benefits for everyone involved in the care of a patient. The definition states: "An empowered patient has control or a feeling of control over the management of his condition in daily life" (European Patients Forum, 2015/ Eeckman, 2018). The concept starts from the observation that a person who is ill and wants to receive care becomes dependent, in the first phase, on a number of resources that the doctor possesses, such as information, knowledge, his skills and time and his legal prerogatives (Emmerson, 1962). The doctor also depends on resources owned by patients, such as their information and time, and the doctor needs patients for his income. However, in this mutual dependence, the patient is more dependent on the doctor and other healthcare providers than vice versa, primarily because for the patient, the importance is greater. The loss of self-control and autonomy that a patient undergoes feels very bad and can lead to aggressiveness, passiveness, ... and can even make one sicker. Therefore, a healthcare provider should not only provide the best possible biomedical care but also try to preserve, restore, and even strengthen each patient's autonomy as much as possible. The means to that end is communication. The patient empowerment process has four phases. In one first phase, information is exchanged between carer and carer via communication. In a second, the advantages and disadvantages of possible treatments are discussed. In a third phase, decisions are made together. These three stages could also be summarized as the well-known process of informed shared decision-making. However, patient empowerment has a fourth essential phase, which is strengthening the patient's self-efficacy, the patient's belief that he is also capable of carrying out the treatment. This whole process requires the caregiver to unlearn to be in total control and the necessary participative competences from both care recipient and caregiver. In mutual respect, an equal relationship of trust is established that seeks only the best for the patient, the best from the point of view of the patient. The advantages are clear: 1) Preventing a patient from feeling even worse because of the feeling of dependence, 2) Patient Empowerment is a prerequisite for self-management in his health process in which the patient takes an active role, 3) patient Empowerment can lead to higher adherence, 4) patients bear joint responsibility for their health which is also essential for the prevention of illness, 5) Patient Empowerment could lead to fewer conflicts between patients and caregivers. Patient empowerment is in the interest of all involved in a patient's care and is not optional at a time when people are becoming more vocal, demanding more participation and less willing to undergo what happens to them.

Parallel Session 9: Clinical Cases PD Peritonitis/Infection

Tuesday, November 28, 2023, 05:00PM-05:30PM, Level 4

'Relapsing Peritonitis with Brevibacterium, thought to be Biofilm-Related. Urokinase was used to Salvage the Catheter : Good Practice or is it Always Better to Replace the Catheter?'

www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

Gert Meeus

Nephrologist
Az Groeninge

Relapsing and repeat peritonitis are defined as recurring episodes of peritonitis caused by the same pathogenic organism, ocurring within or after 4 weeks of the previous infection, respectively. They are a common and potentially serious complication of peritoneal dialysis, that can lead to catheter removal, with interruption of peritoneal dialysis and even treatment failure, therefore making temporary or permanent transfer to hemodialysis necessary.
Based on low-quality evidence, current ISPD guidelines suggest simultaneous removal and placement of the peritoneal dialysis catheter as the treatment of choice for this condition. Especially in cases of severe peritonitis and infections with high-risk microbial agents this indeed is the preferred option.
However, even when the removed catheter is replaced simultaneously temporary interruption of peritoneal dialysis with transfer to hemodialysis can not always be avoided. This may lead to patients being reluctant to undergo the procedure. Also, surgical intervention may be less feasible due the medical condition of the patient (e.g. when peritoneal dialysis is performed in a frail patient in a nursing home).
Under these conditions, attempts at catheter salvage may offer an alternative approach. Apart from a prolonged duration of antibiotics, attention should be given to the presence of biofilm. The formation of biofilm is thought to play an important role in the pathofysiology of recurrent and repeat peritonitis. Its presence reduces local antibiotic concentrations and may lead to microbial tolerance, decreased antibiotic efficacy and eventually therapeutic failure.
Therapies directed at disruption of the catheter biofilm may reduce attachment of the causative agent to the catheter, while simultaneously restoring antibiotic susceptibility thanks to better penetration of the antibiotic. If successful, this approach would allow the patient to avoid surgical intervention and would enable continuation of peritoneal dialysis treatment without interruption.
Instillation of urokinase into the catheter lumen has been used most often for this purpose. It is no longer recommended in the current guidelines, but the question remains whether its use may still be considered, especially in cases where the microbial agent causing peritonitis has a relatively low virulence, or when a conservative approach to treatment is preferred.
The current case presentation describes two cases of relapsing/repeat peritonitis where urokinase was used in an attempt to disrupt biofilm formation. After a brief review of the available literature this approach will be discussed further. We will try to identify factors that affect the odds of catheter salvage, and determine if there are specific circumstances where attempts at catheter salvage still have a place and may offer an acceptable alternative to catheter replacement, depending on the clinical condition of the patient, patient preference and certain pathogen-related factors.

Parallel Session 10: Basic Science: Epidemiology and Methodology

Tuesday, November 28, 2023, 04:30PM-05:00PM, Level 3 | Meeting Room 6

‘What We Can and Cannot Learn from Non-Randomised Studies and Routinely Collected Medical Data’

Johan Steen

Post-Doctoral Researcher
Ghent University

Despite their own limitations (such as being costly, time-consuming, and lacking external validity), randomised controlled trials (RCTs) are often considered the gold standard for drawing causal inferences and to reliably inform medical decision making. Observational studies (especially retrospective studies), on the other hand, are known for their increased risk of bias in quantifying the relative benefit or harm of certain medical interventions or treatment strategies. Confounding bias, which is eliminated by design in randomised studies, is often portrayed as the usual culprit when findings of observational studies turn out to be invalid or unexpected. As a result, attempts for bias correction or bias reduction are often entirely focused on confounding adjustment. Paradoxically, inadequate (over)adjustment may make things worse and may introduce or even amplify bias. At the same time, other, less familiar types of bias that plague observational studies (such as immortal time bias, lead time bias, and prevalent user bias), are often much more severe than confounding bias, but can more easily be avoided. Unfamiliarity with these other forms of bias, as well as with the solutions to tackle them (not only among medical doctors, but also among statisticians, data scientists, …) can be expected to lead to a proliferation of invalid and misleading results, especially considering the increasing availability and (secondary) use of routinely collected health data. Even so, in many situations, this type of retrospective observational data is being used to answer questions that would otherwise be answered by means of properly conducted RCTs (e.g. when RCTs have not yet been conducted). Given the increased popularity of machine learning algorithms, it is not uncommon for confounding adjustment procedures to be entirely data-driven. However, adjustment without consideration of the causal and temporal structure of the variables at hand may not only lead to over-adjustment bias, but may also (unknowingly) change the targeted research question and, as a result, complicates a clinically sensible interpretation. By blindly ‘feeding’ data-adaptive machine learning algorithms ever increasing volumes of patient data, we therefore risk to produce increasingly precise answers to increasingly vague questions. Still, progress can be made by learning from past mistakes in retrospective studies; mistakes that have been documented in detail, especially in the epidemiological literature. For instance, in recent years, a formal causal framework that revolves around ‘target trial emulation’ from observational data has gained traction in medical research, including kidney disease. This framework promotes design-based thinking

journal officiel du Registre de Dialyse Péritonéale de Langue Française **RDPLF** www.rdplf.org

www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

and formulating precise questions about interventions by encouraging researchers to give a detailed description of the hypothetical RCT that would target that particular question. This description then helps to assess whether the question may be answered by the data at hand and, if so, helps to tailor the statistical analysis while preventing avoidable forms of bias. In this talk, I will give a few examples where such formal causal reasoning can help – and has already helped – to more effectively avoid common pitfalls. I will also briefly discuss and demonstrate the role of causal diagrams as building blocks to communicate and reason about these biases.

Parallel Session 10: Basic Science: Epidemiology and Methodology

Tuesday, November 28, 2023, 05:30PM-06:00PM, Level 3 | Meeting Room 6

'Skin Autofluorescence as a Novel Biomarker to Assess Nutritional Status in PD'

Maarten Taal

Professor of Medicine
University of Nottingham

Skin autofluorescence (SAF) is a non-invasive measure of tissue accumulation of advanced glycation end products (AGEs) which increases in the setting of kidney failure as a result of increased generation due to hyperglycaemia and oxidative stress and decreased excretion by the kidneys. AGEs are also generated by cooking food (particularly with high fat and protein content) at high temperatures and tobacco smoking. AGEs cause cross-linking between proteins and have been proposed to play a role in tissue changes associated with aging, diabetic microvascular complications and cardiovascular disease by contributing to the development of arterial stiffness and promoting inflammation. SAF has therefore been proposed to be a clinically useful marker of cumulative "metabolic stress".
A landmark study reported that higher SAF was an independent and strong predictor of cardiovascular mortality and all-cause mortality in people receiving haemodialysis (HD). Further research has shown that elevated SAF is a risk factor for cardiovascular events and increased mortality in the general population, people with diabetes or cardiovascular disease and people with chronic kidney disease. SAF levels are markedly elevated in people requiring dialysis, including in children. Similar SAF levels have been reported in those receiving haemodialysis and peritoneal dialysis (PD), though there is some variation between studies. Exposure to glucose and glucose degradation products in PD fluid is thought to further contribute to AGE accumulation.
We sought to investigate the impact of dietary AGE intake and nutritional status on SAF in people receiving HD and PD. Unexpectedly, higher SAF was not associated with higher dietary AGE intake but was independently associated with malnutrition. Furthermore, during an observational period of one year, the development or persistence of malnutrition was independently associated with increasing SAF. Further, we confirmed that both elevated SAF and malnutrition were independently associated with higher mortality during a median of 19 months of observation. When malnutrition was treated with intensive dietary advice and supplements in a prospective study, we observed that SAF remained stable over six months, whereas it continued to increase in an historical control group.
SAF therefore appears to be a clinically useful biomarker that is becomes elevated with malnutrition in people requiring dialysis and is an independent predictor of higher mortality. Further research is warranted to define the role of SAF monitoring in clinical practice and to further test interventions that decrease SAF and the associated risks.

Parallel Session 11: What's New in Infection Management

Wednesday, November 29, 2023, 08:20AM-08:50AM, Level 1 | Auditorium

'What Can We Learn From our Practices?'

Antoine Lanot

Nephrologist
Nephrology, University Hospital of Caen Normandy

The occurrence of infections related to peritoneal dialysis is a frequent and serious event, since it is the leading cause of transfer to hemodialysis in most countries. Among the various factors associated with infections, we can distinguish patient-related factors, factors linked to the organization of centers, and factors linked to the care practices applied. This last group of factors is the most easily modifiable, and should therefore be given priority if we hope to reduce infection rates. International recommendations are available for the prevention and management of infections in peritoneal dialysis, but several international observational studies have shown that these recommendations are far from uniformly applied, even for strong recommendations associated with a high level of evidence, such as the administration of IV antibiotics at peritoneal dialysis catheter insertion, or the use of antibiotic cream at the catheter exit-site [1-5]. However, there are various situations in which the application of the recommendations is not optimal. In some particular patient groups that do not correspond to the patients included in the trials that motivated the recommendations for example, or in the case of recommendations with low levels of evidence and with inconsistent trial results.

In large observational PDOPPS studies, neither the use of prophylactic antibiotic at catheter insertion nor the application of antibiotic creams to the catheter exit-site was consistently associated with a reduced risk of peritonitis [6].

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www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

In France, an observational study showed that when considering the existence of a center effect, the association between the use of prophylactic antibiotics at catheter insertion and the risk of peritonitis was not significant [7]. However, this association had been demonstrated in a randomized trial, the main limitation of which was precisely its monocentric nature, making it difficult to generalize the results [8].

Following the identification of this center effect, we asked ourselves the question of the effect of center-related practices and their interactions. We used a hierarchical ascending analysis to define, without any a priori hypothesis, clusters of centers in which peritoneal dialysis care practices were homogeneous, and we then showed that the risks of transfer to hemodialysis, but also the risks of transfer to hemodialysis linked to peritonitis, were significantly different between the clusters of centers thus defined [9].

In conclusion, care practices are associated with the infection risk in peritoneal dialysis. While in some cases the application of recommendations may be questioned, the current application of recommendations on best anti-infectious practices is insufficient. Future studies should evaluate the impact of care practices adopted simultaneously within protocols adapted to the patients and their environment.

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Parallel Session 11: What's New in Infection Management

Wednesday, November 29, 2023, 08:50AM-09:10AM, Level 1 | Auditorium

'Direct Re-Insertion of a Catheter: PRO'

Jernej Pajek

Consultant Nephrologist
UMC Ljubljana Slovenia

Peritoneal dialysis catheter removal and simultaneous reinsertion is generally indicated for unresolving catheter-related infections, well responsive relapsing and repeat peritonitis episodes presumably associated with biofilm formation and certain mechanical non-infectious complications. Traditionally, PD catheter removal is followed by a period designated for peritoneal rest and the administration of antibiotics. This interim period often necessitates a temporary transition to hemodialysis, typically employing a central venous catheter. The concept of simultaneous catheter removal and reinsertion offers distinct advantages over the conventional two-stage procedure: it minimizes the number of surgical procedures, it maintains the patient on their chosen dialysis modality and it avoids potential complications from a temporary shift to HD such as catheter-related bloodstream infections, exhaustion of central vein capital, mechanical complications and a faster deterioration of residual renal function with interim HD procedures.
Main types of bacteria causing relapsing and repeat peritonitis are coagulase negative staphylococci, Staphylococcus aureus and Pseudomonas. For instances of relapsing or repeat peritonitis, where the PD effluent cell count and culture return to normal post an adequate treatment duration, simultaneous removal and reinsertion can be contemplated. A study conducted by Crabtree and Siddiqi (2016) analyzed the clinical outcomes of 55 cases that underwent simultaneous laparoscopic catheter removal and reinsertion at a single medical center. Among these, there were 28 cases with relapsing peritonitis and 12 with refractory tunnel infections without peritonitis. Coagulase-negative staphylococci were responsible in 26 peritonitis cases, S. aureus in one, and Streptococcus viridans in another. Tunnel infections, on the other hand, were predominantly due to Pseudomonas aeruginosa. It's noteworthy that all these patients were on antibiotic therapy until the surgical procedure and continued the same for 2 to 4 weeks post-operation. In every case, PD was resumed on the surgery day, adhering to a day-dry, supine, low-volume APD protocol. An 8-week follow-up showed encouraging results, with all patients continuing PD without any subsequent relapse of peritonitis or other complications.
Another study from France, led by Viron et al., analyzed 11 patients who underwent simultaneous catheter removal and insertion. The causative organisms in these patients varied, with five being Gram-positive, four Gram-negative (including one Pseudomonas case), and

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www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

two yeast infections in patients who opted against transitioning to HD. Eight cases (73%) continued with PD without needing to switch to HD. Seven of these eight were still on PD after a year, with no recurrence of peritonitis. Among the two cases of fungal peritonitis, one patient managed to continue PD for nearly 16 months, while the other couldn't resume dialysis.
The alternative to simultaneous catheter replacement for cases of well responsive relapsed and repeat peritonitis is to treat presumed biofilm bacteria with a fibrinolytic agent and rifampicin added to anti-staphylococcal antibiotic, although the reported success rate with this strategy at 64% seems less favorable to catheter replacement.
In conclusion, simultaneous catheter removal and reinsertion should be the treatment of choice for non-resolving catheter infections and well responsive relapsing and repeat peritonitis attributed to biofilm. Importantly, the antibiotic therapy should be extended during and after the new PD catheter placement to ensure optimal patient outcomes.

Parallel Session 11: What's New in Infection Management

Wednesday, November 29, 2023, 09:10AM-09:30AM, Level 1 | Auditorium

'Direct Re-Insertion of a Catheter: CON'

Karlien François

Nephrologist
UZ Brussel

Peritoneal dialysis (PD)-associated infections are an important cause of PD technique failure. Timely PD catheter removal is mandatory in case of severe peritonitis in order to preserve the peritoneum for future peritoneal dialysis and to prevent morbidity and mortality. Refractory peritonitis, fungal peritonitis and relapsing or repeat peritonitis therefore require catheter removal. Besides, PD catheter removal is warranted in clinical situations associated with severe catheter-related infection, i.e. refractory exit site or tunnel infection, or exit site or tunnel infection with concomitant peritonitis with the same organism.

Return to PD is possible in most patients requiring removal of the PD catheter because of PD-associated infections. Although only limited data are available on the optimal time between catheter removal and reinsertion, a two-step approach with a PD catheter-free period of 2 to 3 weeks between removal and reinsertion is generally adopted.

Observational data showed feasibility of simultaneous PD catheter removal and reinsertion in case of refractory tunnel infection and in the setting of relapsing or repeat peritonitis whenever the procedure was done under antibiotic coverage and after bacterial effluent cultures became negative, the PD effluent cell count was lower than 100/mcL and in the absence of concomitant exit site or tunnel infection. While the effectiveness of simultaneous PD catheter removal and reinsertion is demonstrated in cases of Gram-positive infections, feasibility of a 1-step approach remains unclear for Pseudomonas, fungal, mycobacterial and severe enteric peritonitis episodes.
Treatment of PD-associated infections should always consider long-term PD technique success. Adequate treatment of PD infections, including a PD catheter-free period if necessary to ensure that the source of infection is controlled, will increase the cure rate and reduce long-term problems with ultrafiltration and technique failure.

In situations of unresolved peritonitis or uncontrolled source of infection, e.g. refractory peritonitis, fungal peritonitis, peritonitis with concomitant exit-site or tunnel infection or severe tunnel infection with deep cuff involvement, simultaneous PD catheter removal and reinsertion will hinder infection control and peritoneal membrane integrity. In these situations, a 2-step approach for PD catheter removal and reinsertion should be set-up without direct reinsertion of a new PD catheter after PD catheter removal.
In patients with some degree of residual kidney function, a dialysis pause may be considered after PD catheter removal instead of temporary hemodialysis. Diuretics, dietary measures, and potassium binders may help in postponing dialysis need. Urgent-start PD after 2nd step PD catheter reinsertion may help to avoid temporary hemodialysis. When temporary dialysis rest is not possible after PD catheter removal in patients with severe and/or uncontrolled peritonitis or PD catheter infection, only temporary hemodialysis and adequate source control of infection - including a PD catheter-free period - will support future viability of PD.

Parallel Session 12: Basic Science: Beyond the Membrane

Wednesday, November 29, 2023, 8:00AM-8:20AM, Level 3 | Meeting Room 6

'Innate Immune Response and Cardiovascular Disease in PD Patients'

Anne-Catherine Raby

Lecturer
Cardiff University

The innate immune system of End-Stage Renal Disease (ESRD) patients displays a number of dysfunctions and is typically character-

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www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

ised by high background levels of chronic activation coupled with a reduced ability to respond to further pathogenic challenges. Kidney tissue damage, uraemia and dialysis are all thought to contribute to the state of chronic inflammation and immunosuppression seen in PD patients. However, the mechanisms by which PD-associated immune dysfunction promotes the development of comorbidities, such as cardiovascular disease -the leading cause of death in ESRD and PD - are poorly understood.
Damage-Associated Molecular Patterns (DAMPs) play a critical role in inflammatory pathologies, notably via their activation of Toll-like receptors (TLRs), and have been found to drive vascular disease. Although DAMPs' contribution to increased CV risk in ESRD has been suggested, confirmation of their involvement, the underlying mechanism(s), the extent to which individual DAMPs contribute to vascular pathology in ESRD, and the evaluation of potential therapeutic strategies, have remained largely undescribed. Our recent findings demonstrated that the DAMP-TLR pathway is a major contributor to systemic inflammatory and vascular responses that drive CVD during chronic nephropathy, and that it can be efficiently targeted using a multi-TLR inhibitor, an approach that does not compromise bacterial clearance.
We confirmed the elevation of 4 TLR DAMPs in ESRD patients namely, Hsp70, Hyaluronic acid (HA), HMGB-1 and Calprotectin, and found that they differentially promoted key cellular functions and responses in endothelial cells, monocytes and macrophages associated with vascular inflammation and dysfunction and atherosclerosis promotion. Of these 4 DAMPs, Calprotectin and Hsp70 most robustly and consistently affected the functions tested. In addition, Calprotectin was further elevated in CVD-diagnosed CKD patients, highly correlated with the predictor of CV events CRP, and its pharmacologic inhibition substantially reduced the vascular consequences of chronic nephropathy in mice.
Another contributor to long-term CV risk in PD is the occurrence of peritonitis. We reported that a peritoneal bacterial infection episode in mice, cleared within 24h, leads to systemic and vascular inflammatory changes that are maintained 28 days and can promote vascular inflammation and atherosclerosis development by inducing i) higher blood proportion of innate immune leukocytes, ii) increased leukocyte expression of adhesion molecules, ii) higher plasma pro-inflammatory cytokine levels, and iv) increased aortic atherosclerosis-associated gene expression. Importantly, these long-term responses were aggravated upon repeated daily exposure of mice to PD fluids. Peritonitis resulted in a strong elevation in plasma levels of the DAMP Calprotectin, both in PD patients and mice, which in the latter remained elevated for 28 days. In vivo, Calprotectin blockade robustly inhibited the short and long-term systemic and vascular inflammatory consequences of peritonitis, critically without affecting bacterial clearance.
Thus, our findings provided mechanistic confirmation of the contribution of specific DAMPs in driving vascular inflammation and atherosclerosis-promoting responses in ESRD and PD and demonstrates the therapeutic potential of multi-TLR- and specific DAMP-targeting strategies to lower CV risk in these patients.

Parallel Session 12: Basic Science: Beyond the Membrane

Wednesday, November 29, 2023, 8:20AM-8:40AM, Level 3 | Meeting Room 6

'Microbiome in PD'

Rebecca Herzog

Postdoc
Medical University of Vienna

The human gut microbiome, the collection of microbes within the gastrointestinal tract, plays a pivotal role in various diseases, as well as in essential bodily functions such as digestion, metabolic processes, vitamin production, immune modulation, and protection against pathogens. This relationship is characterized by a bidirectional interaction between the gut and other organ systems, e.g. the gut-kidney axis, affecting health and disease. The gut-kidney axis is characterized on the one hand by uraemia, which affects microbial composition and metabolism, and on the other hand by uremic toxins derived from bacterial metabolism in the gut. Whereas PD adds non-physiologically high amounts of glucose to the system.
The impact of CKD and PD on the gut's microbial balance and its impact on outcomes have become subjects of growing research interest. Disturbance of the balance in the gut microbiome, known as dysbiosis, can lead to the proliferation of pathogenic bacteria. One critical facet of PD management is the prevention of peritonitis. The immune system's role in PD cannot be overstated, and the gut microbiome is a crucial player in this arena. Dysbiosis can disrupt the finely-tuned immune response required to ward off complications. The gut microbiome also influences nutrient metabolism and the body's response to glucose and insulin.
Advances in technology, such as high-throughput sequencing, have transformed our ability to analyse the gut microbiome and previously non-culturable microorganisms, expanding our understanding of their existence and distribution. This progress has not only deepened our knowledge of the gut microbiome but also extended our understanding to microbiomes in other organ systems. CKD and PD are also associated with increased intestinal permeability. Increased permeability is caused by the downregulation of cell junction proteins in the gut. Increased intestinal permeability can lead to leakage of bacteria or bacterial components, known as "leaky gut.
The gut microbiome's role in PD is a rapidly advancing field that holds promise for improving patient care. As our understanding of the gut-kidney axis and the microbiome's influence on PD continues to grow, the presentation will summarize relevant publications of the impact of CKD on the gut microbiome and the specific alterations during PD therapy including peritonitis treatments.

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www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

Parallel Session 12: Basic Science: Beyond the Membrane

Wednesday, November 29, 2023, 08:40AM-09:00AM, Level 3 | Meeting Room 6

'GDPs: Still a Concern?'

Monika Pischetsrieder

Professor
Friedrich-Alexander Universität Erlangen-Nürnberg

Glucose, the most common osmotic agent in peritoneal dialysis fluids, is not stable during heat sterilization, leading to the formation of glucose degradation products (GDPs). Commonly, six α-dicarbonyl compounds and four monocarbonyl compounds are analyze to monitor glucose degradation and to control product quality. GDPs may cause adverse effects, such as cytotoxicity and decline of membrane function, which are mostly attributed to the single compound 3,4-DGE. Therefore, several mitigation strategies have been developed to minimize the GDP-, and in particular 3,4-DGE-, concentrations in PDFs for example by double chamber bags or by using polyglucose as osmotic agent1.
In recent studies, the influence of processing and handling of PDFs on the GDP content was studied more in detail. Consequently, a major influence on storage was determined2. During a simulated transport, 3,4-DGE concentrations almost tripled up to 1 week, whereas further storage up to 26 weeks led to a significant drop. Thus, adjusted storage management can improve biocompatibility of single and double chamber PDFs. Furthermore, impurities of metal ions, mainly iron, manganese and chromium were identified as another contributing factor for the formation of oxidative GDPs3.
Thus far mainly local adverse effects of 3,4-DGE were described, which take place in the peritoneal cavity and eventually lead to mesothelial denudation and a loss of ultrafiltration capacity. Less is known however, if 3,4-DGE can be absorbed through the peritoneal membrane and exert also systemic effects. Recently, the processes were modelled, which take place when 3,4-DGE enters the human blood circulation. 3,4-DGE reacts very quickly and selectively with the cysteine residues of proteins and peptides. Consequently, plasma concentrations of glutathione and human serum albumin acted as quenchers, which almost immediately abolish 3,4-DGE. Depending on the serum 3,4-DGE concentrations, this detoxification mechanism, on the other hand, may also enhance oxidative stress4.
In conclusion, the presence of GDPs in PDFs has been known for a long time and were associated with local peritoneal damage in animal models of PD and with adverse clinical outcomes. Although effective measures have been developed to reduce GDP concentrations, patients are still exposed to these compounds. Therefore, their concentrations must be closely monitored from production to the point of care. Additionally, novel insights on their chemistry and physiology will help to improve and adapt mitigation strategies.

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Plenary Session 13

Wednesday, November 29, 2023, 09:35AM-10:25AM, Level 1 | Auditorium

'Looking to the Future. How can we Translate Basic Science into Improving Outcomes of Kidney Failure?'

Christoph Aufricht

Head of Division of Pediatric Nephrology and Gastroenterology
Medical University of Vienna

As a pediatrician, Aufricht had a priori a different approach to peritoneal dialysis than most of his friends in adult nephrology, as PD is the most frequently performed therapy in pediatrics, especially in small children. He was therefore surprised to find that PD is only used in relatively few patients in adulthood and personally sees this as a deprivation of a very promising form of treatment. He is even more (extremely) surprised that PD patients today are still being treated with the same PD solutions that were approved at the beginning of his career in the 1990s. This would not be a problem if PD patients did not have problems. However, we know that many of these patients have complications, such as peritonitis, or inadequate treatment of symptoms such as fatigue or cardiovascular problems – resulting in a mortality rate that is equal/worse to oncology. This indicates that current therapy is not sufficient to sufficiently reduce uremic symptoms, but is still associated with serious side effects. From Aufricht's point of view, the only reason why he can accept this situation for his PD patients today is that hemodialysis is also a deeply unsatisfactory form of therapy that additionally gives the patient (and their family) less

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www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

freedom. This balance of terror requires counter-activity, and this activity, for him and many other PD researchers, is scientific research. In this lecture, at the beginning, his overall picture of the interaction between the pathophysiology of end-stage kidney failure and the advantages and disadvantages of life-sustaining dialysis will be given. Then a selection of the activities in basic research in Europe will be presented, especially within the framework of the recent EU project IMPROVE PD. Aufricht will also briefly use the opportunity to delve into the research topic of his own group, namely the control of the so-called dysfunctional stress response, which is triggered by conventional PD solutions, using a self-developed PD solution that made it to a successful phase 2 trial. Building on this, he will hypothesize on novel pathways to systemic inflammation in PD and on the potential of immune metabolic interventions to overcome these pathomechanisms. Finally, Aufricht will present an outline of a future European network project currently in preparation, EUDOPD, which should be submitted the day before the lecture. In EUDOPD, 15 researchers in 7 European countries will focus on overcoming at least some of the current disconnects in PD by pooling expertise from diverse fields engaged in various aspects of the immune metabolism and chronic disorders to support a research program towards transformation of PD towards improved outcomes in patients with end-stage kidney failure. After this lecture, the listener should better understand the opportunities and problems, but above all the fascination of translational research for solving unacceptable clinical problems.

Parallel Session 13: Qualitative Research: Modality Selection

Wednesday, November 29, 2023, 12:10PM-12:30PM, Level 1 | Auditorium

'Uptake of Homebased Therapies can Only be Achieved by Regulation: CON'

Martin Wilkie

Consultant Renal Physician
Sheffield Teaching Hospitals NHS Foundation Trust

Health Care system design has a big impact on the uptake of Home Dialysis Therapies – as evidenced by notable examples including the PD First policy in Hong Kong where in 2021 74% of prevalent kidney replacement therapy patients were treated with peritoneal dialysis(1) and the Prospective Payment System in the United States(2). Quality improvement approaches also have their role such as those from Ontario, Canada(3).

However, whatever health care system approaches are adopted to increase home dialysis uptake, patient empowerment is at the heart of all that happens since it is they, and their care giver, who will perform the treatment. It is, therefore, the patients who we as health care providers need to educate and enable to take a greater role in their own care and indeed to feel able request greater independence and self-care. Evaluation of the factors that contribute to empowerment for people treated with PD reflects that education which increases patients' overall health literacy and knowledge of PD self-management would encourage more informed and shared decision-making (SDM)(4). Indeed a systematic approach to SDM is central to enabling greater uptake of home therapies(5). Peer support has a key role and mechanisms to its greater use clearly have a role also.

The problem that we face is that more than 80% of people who receive dialysis do so at centres where they have little involvement in their own care. This is inequitable because these individuals also deserve opportunities to learn about their own care. Indeed, a systematic approach where all those who dialyse at centres are given the opportunity and support to learn tasks relating to their own dialysis and by doing so to become active partners in their treatment reaps major benefits. These include greater self-confidence and esteem as individuals gain expertise, starting with the simplest treatment related tasks and moving to the more complex over time. This approach is termed Shared Haemodialysis Care to signify its collaborative approach(6). This mastery of practical tasks enables more people to choose to undertake their treatment at home, increasing from 7.5% to 11.6% (32 to 49/423, difference 4.0%, 95% CI 1.0-7.0) in a recent randomised trial (7). Under pinning this initiative requires nurse training programs that fully involve expert patients to build a community of practice that advances this work(8).

So in addition to policy level changes that promote home dialysis, a systematic approach is required that supports people who require dialysis to have every opportunity to learn about and be involved in their own care.

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https://doi.org/10.25796/bdd.v6i3.81673
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Parallel Session 14: Clinical Case Discussions: Challenging Situations

Wednesday, November 29, 2023, 11:50AM-12:30PM, Level 4

'PD in PKD and Obese Patients'

Anabela Malho Guedes

Nephrologist

Centro Hospitalar Universitario Do Algarve

PKD and obesity can bring different challenges to the patient and to the PD team. This presentation enlightens some of the more common difficulties found. Real life clinical cases are exposed, and interactivity is assured by posing some controversial questions to the audience. Although several possible alternatives can benefit our patients, joining daily practice with literature insights is the aim of this talk, in order to help the clinician to skillfully manage these difficult situations.

Parallel Session 15: Basic Science: Inflammation and Fibrosis

Wednesday, November 29, 2023, 11:00AM-11:25AM, Level 3 | Meeting Room 6

'Mechanistic Links between Macrophages and Mesothelial Cells on Initiating Peritoneal Fibrosis and Stabilising Scar Tissue'

Sarah Herrick

Professor
The University of Manchester

Peritoneal fibrosis represents an array of pathological conditions including simple peritoneal sclerosis with tissue thickening, fibrous adhesions that tether viscera to each other and/or the abdominal cavity wall and the more severe condition, encapsulating peritoneal sclerosis associated with mass adhesion formation and cocooning of viscera. Adhesions can cause serious complications such as chronic abdominal pain, life-threatening intestinal obstruction and, in women, infertility, all of which are associated with considerable morbidity and economic burden.

Peritoneum is a gliding interface that lines the abdominal and pelvic cavities and the viscera that they contain. The mesothelial layer forms a protective epithelial-like barrier with a surface glycocalyx, intracellular junctional complexes and adherence to a basal lamina. Mesothelial cells are subjected to many injurious triggers including abdominal surgery, peritoneal dialysis, and metastatic tumour cells. A tissue repair response is initiated with scarring events resulting in extracellular matrix deposition and progressive thickening of the subserosal layer and adhesion formation, dependent on the extent and duration of injury. Mesothelial cells become collagen-producing fibroblasts via a process of mesothelial-mesenchymal transition and hence participate in the subsequent loss of peritoneal barrier integrity and membrane function.

As with other fibrotic diseases, peritoneal fibrosis is driven, in part, by inflammatory processes. Macrophages contribute in multiple ways to the tissue repair response with both pro- and anti-scarring properties and are proposed to be pivotal in determining the extent of scarring outcome. Using a mouse peritoneal injury model, we found that differences in responses of specific macrophage subpopulations, in part, account for the propensity of developing mature peritoneal scars. C57BL/6 mice displayed an increased monocyte influx early after injury with less subsequent scarring compared with BALB/c mice suggesting these monocytes may have a protective function. Furthermore, crosstalk between mesothelial cells and macrophage subpopulations influenced aspects of mesothelial-mesenchymal transition and extracellular matrix remodelling. Understanding interactions between mesothelial cells and inflammatory cells, both in the initiation of peritoneal fibrosis and stabilization of scar tissue, is crucial for developing targeted therapies and preventive strategies for the effective management of these conditions.

Parallel Session 15: Basic Science: Inflammation and Fibrosis

Wednesday, November 29, 2023, 11:50AM-12:30PM, Level 3 | Meeting Room 6

'Macrophage Metabolomics in the Peritoneal Dialysis Patient'

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www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

Luke Davies

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Swansea University

Chronic Kidney Disease (CKD) is a significant health concern, affecting up to 12% of the global population and its prevalence is increasing, described by some as a 'public health emergency'. The primary treatment haemodialysis currently places a substantial burden on healthcare systems, and this will only increase. Additionally, the demand for transplants far outpaces the supply, they can be rejected, and not all patients are eligible for, or want this procedure.
As an alternative, at-home peritoneal dialysis (PD) is gaining popularity. It offers both quality of life and financial benefits by reducing hospital visits and providing patients with more freedom. However, PD is not without its challenges. It's not currently a permanent solution due to potential complications like peritonitis and fibrosis.
Immune cells, including macrophages, neutrophils, and T-cells, play a crucial role in defending against peritoneal infections. However, they also contribute to the inflammation leading to fibrosis. Therefore, research aimed at understanding and restoring the normal function of immune cells in PD could enhance treatment longevity, lessen the strain on health systems, and improve patient quality of life.
PD operates by using a peritoneal catheter to fill and drain the peritoneal cavity with approximately two litres of dialysis fluid. This fluid is a simple mixture of glucose and buffers designed solely to extract waste metabolites from the blood.
Recently, there has been growing interest in 'immunometabolism' - the study of how immune cells utilize different metabolites and pathways for their unique functions. Previous research has demonstrated that peritoneal macrophages are a unique tissue-resident population that requires peritoneal-enriched glutamate for its antimicrobial functions. Additionally, it's well-documented that T-cells require glutamine for proliferation and maintaining adaptive immune defence.
These are just a few examples of the complex interplay between in situ metabolites and their utilization by immune cells. However, current PD practices do not adequately consider the health and function of immune- or even mesothelial cells. PD solutions can contain high concentrations of glucose, which skews immune cells toward a pro-inflammatory phenotype, and have no other beneficial metabolites. An important exception is the recent trial conducted in the Medical University of Vienna, which demonstrated that alanyl-glutamine addition to PD fluid improved peritoneal cell health and responses in PD.
This trial represents just the tip of the iceberg. The future of PD will likely involve optimizing solutions with multiple metabolites and proteins to make it a safe, effective, and long-term therapy to meet this 'public health emergency'. However, our first step must be to identify what a healthy peritoneum looks like and determine the most critical molecules needed for maintaining cell health and immune protection while limiting inflammation.

Parallel Session 16: Life Participation (Including Patient Testimonies)

Wednesday, November 29, 2023, 11:50AM-12:30PM, Level 1 | Auditorium

'What is Life Participation?'

Timothy Moreels

PHD Candidate
Ghent University Hospital

The traditional biomedical approach, which primarily focuses on treating physical symptoms and disease, has struggled to meaningfully improve patient-reported outcomes, this despite ever rising healthcare expenditures1,2. Until recently, clinical studies typically overlooked outcomes that hold the most value for patients and have instead frequently relied on biochemical measures, often due to their cost-effectiveness, efficiency, and ease of assessment3. However, the degree of correlation between surrogate laboratory markers and outcomes including mortality and quality of life has remained largely uncertain4. Consequently, researchers world-wide have increasingly highlighted the need for a stronger focus on the well-being of patients as a pivotal outcome to be both measured and reported in studies, and have called upon new trials and interventions to focus much more on outcomes that matter to patients3,5.
To streamline the identification and prioritization of outcomes, the Standardized Outcomes in Nephrology (SONG) initiative has engaged with over 9,000 patients, family members, and healthcare professionals from 70 countries5,6. Based on their results, life participation, or the ability to perform meaningful activities of life including work, study, family responsibilities, travel, sport, social and recreational activities, was identified as the most important outcome to improve for all persons with end stage kidney disease, regardless of treatment stage or modality5. Notwithstanding the divergence in prioritization, where patients and caregivers assigned greater significance to these outcomes compared to healthcare professionals, all involved stakeholders considered life participation as the most fundamental goal of treatment7-9. This, in large part, formed the basis for the theme of 'World Kidney Day 2021: Living well with chronic kidney disease', which summarized that "irrespective of the type of kidney disease or treatment stage, patients want to be able to live well, maintain their role and social functioning, protect some semblance of normality, and have a sense of control over their health and wellbeing". As noted by the patient voices: "Dialysis is a treatment which keeps us alive to live a life, not just to wait for death."5
With the aim to add to the existing evidence on life participation, we have found that for older adults receiving dialysis, being able to accept a life on dialysis is intricately connected with the ability to (still) perform activities that are personally meaningful10. For older adults, performing social and productive activities, even if they involve little or no physical exertion, have been shown to lower the risk of all-cause mortality as much as physical exercise does11. Additionally, life participation has been shown as a significant predictor of

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https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

both graft loss and mortality for kidney transplant recipients12. For persons receiving dialysis, the ability to cope with their condition is associated with longer survival and improvements in physical functioning and mental health, while functional dependence is a consistent predictor of patient-reported outcomes and mortality13-15.
We have also explored existing self-management interventions that aim to support life participation. Of 22,667 initial records, we were able to include 53 studies. Yet, the majority were pilot or feasibility studies, or studies of low quality, highlighting the need to develop robust interventions through high quality methods and reporting16. While there is a growing emphasis on prioritizing outcomes that matter most to patients, there is still a long way to go in developing a sustainable, evidence-based, and effective approach to supporting life participation… but the call is growing louder.

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Parallel Session 16: Life Participation (Including Patient Testimonies)

Wednesday, November 29, 2023, 03:00PM-03:20PM, Level 1 | Auditorium

'How to Get Patients Involved in Research'

Leah Mc Laughlin

Healthcare Scientist
Bangor University

Involving more people living with kidney disease in research is a global priority research area. Across the research cycle everybody from funders, journal editors and importantly patients are asking for more evidence of patient and public involvement in research. Nonetheless in a global context guidance is varied, there are multiple terminologies and often conflicting agendas which can be confusing and daunting, especially for people who may want to involve more people but may not know what best practice looks like. In this session we will look at exemplars of involvement guidance in a global context and then look more specifically at some examples of recent research

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https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

undertaken by the Wales Kidney Research Unit. These cases studies have won awards for their innovation in ways to involve people across multiple research processes and research study designs, including basic science and clinical trials. Our work to date has shown that involvement of people improves the research outcomes, creates more opportunities for dissemination, increases research impact with stakeholders, and creates more pathways to bring about change in complex systems such as health services. We have also shown that involvement of people can be costly and needs bespoke tailoring and ongoing attention – one size does not fit all. Moving forward research needs more ways to better evidence the impact of involvement in ways that are helpful, sustainable and scalable for everybody involved in research.

Parallel Session 17: Clinical Case Discussions: Home HD

Wednesday, November 29, 2023, 02:00PM-02:20PM, Level 4

'Hypereosinophilia in a Home HD Patient'

Inès Dufour

Fellow in Nephrology
UCLouvain

We described the case of a 55-year-old woman with kidney failure due to primary focal segmental glomerulosclerosis (FSGS) who received a kidney transplant in 1989. Chronic allograft dysfunction required kidney replacement therapy and the patient was started on home hemodialysis in October 2020. In February 2022, she presented with isolated total macroscopic hematuria for three consecutive days. Urinalysis ruled out urinary tract infection. Computed tomography scan of the abdomen showed uncomplicated kidney allograft atrophy. Cystoscopy and gynecologic examination were normal. In April 2022, routine monthly biology revealed severe hypereosinophilia (peak eosinophil count: 3,33× 109/L (normal, <0.5 × 109/L)), total white blood cells: 12,1 x 109/L (normal, 4-10× 109/L) and systemic inflammation (C-reactive protein: 41 mg/L, normal <5 mg/L). No new medication had recently been introduced. Stool ova and parasite test, and anti-neutrophil cytoplasmic antibody were both negative; and lymphocyte immunophenotyping and IgE concentration were normal. A18F-fluorodeoxyglucose positron emission tomography-computed tomography (18F-FDG-PET/CT) was performed and showed intense hyperactivity of the kidney allograft cortex. Graft nephrectomy was subsequently performed. Histopathology showed significant interstitial inflammation with lymphocytes and eosinophils infiltration, signs of glomerulitis (g3), peritubular capillaritis (ptc3) and glomerular basement membrane double contours (cg1). The C4d staining was positive in peritubular capillaries. These findings were all consistent with the diagnosis of eosinophil-rich acute antibody mediated rejection (ABMR) on chronic allograft nephropathy. Blood eosinophils count normalized two weeks after surgery.
Association between peripheral blood eosinophilia and episodes of graft rejection were initially reported in the 1980s. More recent studies have confirmed those findings, proposing eosinophilia as a biomarker for acute rejection1. Rise of blood eosinophils in early post-transplant months has even been proposed as a hallmark of graft rejection2.
Eosinophils are now considered true immunoregulatory cells having some roles in antigen presentation, T-cell regulation, B-cell priming, as well as regulation of dendritic and mast cells, basophils and neutrophils. Eosinophils have been linked to acute allograft rejection induced by Th2-type CD4+ cells, which are effector cells in the alternative pathway implicated in acute rejection3. Cytokines, like IL-5, released by activated T lymphocytes are responsible for the eosinophils recruitment in acute rejection. In experimental mouse heart transplant, acute rejection mediated by Th2 cells was characterized by a marked eosinophils infiltrate in the allograft.
In summary, this case reminds that antibody-mediated rejection should be considered in the differential diagnosis of hypereosinophilia in a transplanted patient, even after kidney graft failure and hemodialysis resumption.

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Parallel Session 17: Clinical Case Discussions: Home HD

Wednesday, November 29, 2023, 02:20PM-02:40PM, Level 4

'Acute Hemolysis in a Home HD Patient'

Inès Dufour

Fellow in Nephrology
UCLouvain

We described the case of a 72-year-old woman with kidney failure who was referred to the emergency room for abdominal pain, nausea

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ISSN 2607-9917

and headaches, appearing ten minutes before the end of a hemodialysis (HD) session. She had been treated with HD for the previous 7 years via a right internal jugular catheter, three times a week, in a self-care dialysis unit, on a Baxter AK98 dialysis monitor, without any complication so far. Sudden abnormal dark aspect of her skin was observed at the end of the HD session and she mentioned new onset of red colored urine. Blood test revealed normocytic normochromic anemia- with a hemoglobin drop from 10.9 g/dL to 8.7 (normal 12.2-15) g/dL-, normal platelets and leukocytes counts, markedly elevated lactate dehydrogenase (LDH) and total bilirubin at 6690 (normal < 250) IU/L and 4.6 (N <1.2) mg/dL (3.7 mg/dL of unconjugated bilirubin) concentrations, respectively. Peripheral blood smear showed no schizocyte; but serum haptoglobin was undetectable. Coombs test was negative. Two units of packed red bloodcells were transfused in the following days and the skin pigmentation progressively cleared within 5 days.
Our patient experienced acute intravascular hemolysis occurring at the end of a HD session. This is an uncommon complication of HD that can be associated with significant mortality and morbidity if not recognized early. The symptoms are non-specific and may include nausea, abdominal/back pain, shortness of breath, headaches, dark urine and chills. Laboratory findings include anemia, elevated lactate dehydrogenase and low serum haptoglobin concentrations. Sometimes, patient may present sudden darkening of skin pigmentation due to the generation of free hemoglobin, methemoglobin, methemalbumin and/or hemopexin-heme containing complexes. Visual inspection of the circuit may reveal that the blood color has changed, becoming port wine or cherry red.
When hemolysis is suspected, HD session should immediately be interrupted and blood from the circuit discarded. Returning the blood to the patient can indeed lead to severe hyperkalemia by infusing potassium released from hemolyzed erythrocytes. Massive hemolysis can be complicated by arrhythmias, acute coronary syndromes, profound anemia, severe necrotizing pancreatitis (thought to be due to a proinflammatory cytokines release), and death. Depending on the severity of symptoms, referral should be made to the emergency or intensive care unit for close monitoring.
Several mechanisms capable of inducing hemolysis during HD have been recognized: dialysate contamination with trace metals (copper or zinc) or toxins (e.g. chloramine, nitrates), hypo-osmolar dialysate, overheated dialysate or kinked dialysis blood lines. Attempting a high dialysis blood flow with a small gauge needles may also induce hemolysis.
In our case, other patients in the concurrent session did not experience similar issue and the patient was dialyzed through a catheter, making both hypothesis of contamination or small gauge needles unlikely. We hypothesized that the acute intravascular hemolysis was due to kinking in the dialysis circuit blood lines caused by the positioning of the remote operator's panel, a movable screen that can be maneuvered near to the patient to allow control of self-care dialysis settings.

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Parallel Session 18: Basic Science Membrane Biology

Wednesday, November 29, 2023, 02:40PM-03:00PM, Level 3 | Meeting Room 6

'Epigenetic Modulation of Mesothelial Cell Function in PD'

Raffaele Strippoli

Associate Professor
Sapienza University (Rome, Italy)

The word 'epigenetics' refers to the study of modifications that directly affect the expression of genes, but are not reducible to changes in the DNA sequence. Current examples are the methylation of nucleotides and changes in the configuration of histones exerted by enzymes such as histone acetylases (HATs) and de-acetylases (HDACs). Another branch of epigenetics is mediated by noncoding RNAs, such as microRNAs (miRNAs) which mediate a post-transcriptional genetic silencing, and long-noncoding RNAs.
Epigenetic regulation by HDACs has been demonstrated to control several cellular functions in response to a wide array of extracellular stimuli. Employing epigenetic target modulators, such as epidrugs, is a current therapeutic option in several cancers and holds promise in treating fibrotic non-tumor and viral diseases.
The main aim of this talk is the analysis of epigenetic mechanisms controlling the plasticity of the mesothelial cells (MC), and in particular the acquisition of mesenchymal-like, invasive and profibrotic features.
After the analysis of a panel of HDAC inhibitors and DNA demethylating compounds, we focused on HDAC class I inhibitors and in particular on MS-275, a HDAC1-3 inhibitor. This epidrug was found to promote the reversal of mesothelial to mesenchymal transition (MMT) in primary MCs from PD patients, causing downregulation of mesenchymal markers (MMP2, Col1A1, PAI-1, TGFβ1, TGFβRI), upregulation of epithelial markers (E-cadherin, Occludin), reacquisition of an epithelial-like morphology, and a marked reduction of cellular invasiveness. These results were confirmed by genetic silencing of HDAC specific isoforms.
We further progressed in the analysis of underlying mechanisms. The downregulation of TGFBRI was linked to an induction of an antifibrotic miRNA, miR-769-5p, directly targeting TGFBRI expression, upon HDAC1-3 inhibition. In particular, HDAC1-3 inhibition promoted the restoration of a WT1/miR-769-5p axis favoring MMT reversal. Quantitative mass spectrometry analysis revealed a number of pathways altered upon MC treatment with MS-275, including extracellular matrix (ECM) components, adhesion receptors and actin cytoskeleton regulators.
Moreover, further studies revealed that HDAC1-3 inhibition deeply impairs the activation of a5b1 integrin, a Fibronectin ligand implicated

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https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

in MC motility, due to the downregulation of actin remodellers such as Talin-1. Experiments of matrix decellularization revealed impaired Fibronectin secretion by MCs upon HDAC1-3 inhibition. In an in vivo assay in mice, MS-275 limited Fibronectin secretion and the sub-mesothelial accumulation of mesenchymal-like MCs.
The effect of HDAC1-3 inhibition in the response of MCs to pathogens was also analyzed. HDAC1-3 inhibition was demonstrated to deeply impact on the response of MCs to viruses. In particular, treatment with MS-275 abrogated the type 1 interferon response upon stimulation with the TLR3 agonist Polyinosinic:polycytidylic acid (Poly(I:C), while differently modulating the production of inflammatory cytokines and chemokines.
Overall, we found that HDAC1-3 inhibition causes a deep reprogramming of MC proteome, characterized by the induction of a MMT reversal through a number of molecular mechanisms. Moreover, the observed inhibition of the Interferon response and the modulation of inflammatory cytokine production has translational implications, deserving further analysis.

Parallel Session 18: Basic Science Membrane Biology

Wednesday, November 29, 2023, 02:20PM-02:40PM, Level 3 | Meeting Room 6

'Stem Cell Therapies to Preserve the Peritoneal Membrane Integrity during PD'

Guido Moll

Scientist/Wissenschaftlicher Mitarbeiter
Charité Universitätsmedizin Berlin

Mesenchymal stromal/stem cell (MSC) therapy has been explored in more than 1000 clinical trials for numerous clinical indications [1]. In the past decade, MSC therapy has been increasingly explored as a novel therapeutic modality in the peritoneal dialysis (PD) setting [2]. Here, we review and summarize the existing preliminary preclinical mechanistic studies and early human proof-of-concept (PoC) studies that have employed MSC therapy in the PD setting in comparison to alternative treatment options.

We conducted a systematic literature search/review of MSC therapy in PD. The most commonly identified MSC-based "intent-to-treat / clinical indications" were either: 1) To ameliorate/antagonize both acute and chronic peritoneal injury in PD, or 2) To antagonize detrimental chronic peritoneal maladaptation (e.g. angiogenesis and fibrosis) in response to PD, which lead to a continuous loss in peritoneal ultrafiltration capacity and thus limits the efficacy and overall duration of this treatment in end-stage renal disease patients. In both approaches based on MSCs intervention, a major aim was to reduce peritoneal damage/maladaptation and concomitant dysfunction to expand the potential PD treatment efficacy and duration of treatment. First experimental MSC therapy studies in the PD setting have been reported from 2012 onwards (originating mainly from China/Taiwan n=5, but also Japan n=2, Iran n=1-2, Turkey n=1, Canada and the USA n=1 each), involving both acute and chronic models, with variable treatment targets in the individual studies, e.g. [3-13]. Most of the experimental/mechanistic studies were conducted in small animal/rodent models employing mainly intravenous (IV) or intraperitoneal (IP) application of either host-species-matched rat/murine-derived MSCs or alternatively also human MSCs as therapeutic intervention. The tissue source of the MSCs was highly variable, including the most conventional bone marrow (BM)-derived BM-MSCs (n=5), but also the recently more popular adipose tissue (AT)-MSCs (n=3), umbilical cord (UC)-MSCs (n=2), and even peritoneal effluent (PDE)-MSCs (n=1). Only few studies employing MSCs in humans on PD were performed to date [12, 13], thus limiting any solid conclusions apart from first preliminary indications of treatment safety and feasibility. The first two reports from Iran included the same 9 patients on PD (18-70 years of age) with different stages of peritoneal inflammation, fibrosis, and ultrafiltration failure (UF<400 mL). The intervention was done with autologous AT-MSCs obtained through lipoaspiration (150-250mL AT) with subsequent in vitro expansion for up to three passages, dosed at 1.2 million cells per kg of patient weight given as intravenous infusion through the cubital vein, with subsequent longitudinal monitoring of treatment safety, inflammatory markers, and ultrafiltration capacity for up to 24 weeks.

MSC therapy in PD is still at an early stage. First preclinical studies and early human PoC trials indicate treatment safety and potential beneficial effects of MSCs to ameliorate complications in PD (e.g. improvements of inflammation and UF). A better mechanistic understanding, further standardization, and improved concepts for clinical delivery of MSC therapies in the PD setting are needed (e.g. optimal product properties, mode of application, and timing of treatment) to establish solid proof in larger placebo-controlled randomized studies.

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www.bdd.rdplf.org Volume 4, supp, november 2023
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Parallel Session 19: Innovation in ESKD: What Should we Take Home

Wednesday, November 29, 2023, 04:00PM-04:20PM, Level 1 | Auditorium

'Potential Clinical Value of Catheters Impregnated with Antimicrobials for the Prevention of Infections Associated with Peritoneal Dialysis'

Maarten Taal

Professor of Medicine
University of Nottingham

Peritoneal dialysis (PD) is an important modality for kidney replacement therapy, with multiple advantages including less intradialytic haemodynamic stress than haemodialysis, better preservation of residual kidney function, flexibility to accommodate different lifestyle choices and home therapy. Moreover, provision requires fewer trained staff and less building space than haemodialysis because it can be performed in the patient's own home. However, wider adoption of PD is limited by PD-catheter related infections, which are the most common cause of access failure, cause considerable morbidity, increase hospital admissions and account for up to 20% of deaths among people performing PD.
Multiple strategies have been tested to reduce PD associated infections with some success attributable to implementation of strict aseptic technique, exit site care, the twin bag system and the "flush and fill" technique. Nevertheless, infection rates remain stubbornly high and additional measures are needed to further mitigate the risk.
Impregnation of catheters with antimicrobial drugs is an approach which has substantially reduced infection rates in the context of other medical applications. This technology has been progressed particularly in the context of neurosurgical shunts. Specifically, a randomised trial of untreated neurosurgical catheters versus silver treated catheters or catheters impregnated with rifampicin and clindamycin found significantly lower rates of infection with antimicrobial catheters but no difference between untreated and silver treated catheters. As a result, antimicrobial impregnated catheters are regarded as standard of care for neurosurgical catheters internationally.
Attempts to develop PD catheters with resistance to bacterial colonisation have shown some promise in animal studies but have not yet been translated to clinical application. We therefore propose to test a PD catheter impregnated with three antimicrobials (rifampicin, sparfloxacin and triclosan) to establish patient acceptability and tolerability in preparation for conducting a randomised trial. The use of three antimicrobial drugs conforms to the "dual drug" principle (use of at least two antibiotics from different classes) to minimise the risk of antibiotic resistance. Impregnation of the catheter with antimicrobials (as opposed to coating) means that drug molecules that are washed off the surface of the catheter are replaced by molecules deeper in the silicone. We estimate that antimicrobial cover will persist for approximately three months.
The study will primarily evaluate patient acceptability and safety but will also explore biofilm formation, colonisation and antibiotic

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www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

resistance in colonising organisms. If shown to be safe and acceptable to patients, we plan to proceed with a randomised controlled trial to assess efficacy in reducing infection rates.

Parallel Session 19: Innovationi n ESKD: What Should we Take Home

Wednesday, November 29, 2023, 04:20PM-04:50PM, Level 1 | Auditorium

'Using Virtual Reality for Peritoneal Dialysis Education of Patients, Families, and Staff'

Ben Reynolds

Consultant Paediatric Nephrologist
NHS Greater Glasgow & Clyde

Training in peritoneal dialysis for patients and families in the UK typically involves either an in-patient admission or multiple out-patient visits. Training is delivered by dedicated nurse specialists/educators, and often incorporates multiple iterations of set-up of dialysis using expired or reusable components. End-stage kidney disease in children is rare, typically 20-30 children will commence PD a year in the UK. This limits training opportunities for staff to opportunistic learning around hospital admissions. It also reduces exposure of dialysis-naïve families to those with dialysis-experienced families, compounded by Covid-19 restrictions limiting social gatherings of families within and outside healthcare environments.

Simulation training has demonstrated efficacy in many areas of healthcare education and is well established, beginning with the use of plastic mannequins for resuscitation training but now incorporating dedicated simulation centres able to replicate many complex situations. Most centres are designed for use for healthcare professionals, are at a fixed location, and have limited availability.
Virtual reality is able to simulate a broad variety of environments and has proven efficacy in training in several industries including aeronautical, nuclear, space travel, and some healthcare environments. Practical procedures can be practised multiple times with no consumables and at no risk to patients, better for the environment and lessening anxiety. The requirement for educational staff to be present is lessened, with practice possible at all times, at the learners own pace, and in the comfort of their own home.
Following in-depth qualitative interviews with families and young people on peritoneal dialysis, an educational package was developed using the head-mounted virtual display unit, MetaQuest 2. This package had multiple iterations of testing by healthcare professionals and families with experience of dialysis. The user interface was modified several times, audio instructions and translation into several languages made available – all to increase accessibility of the program.

The package has been used within the clinical environment on a small number of occasions. We have observed a reduction in overall training time in our unit with the nurse education team from 7-10 days to 3-5 days, a ~50% reduction in duration. Having the ability to give families as much time as needed, and with young parents that have gaming experience, we have been able to achieve home dialysis in families with additional learning needs where it was previously considered impossible. There has been no excess of peritonitis or exit site infections in families undertaking the VR package as educational support.

Using the technology acceptance model(TAM), we have assessed the acceptability and usability for healthcare staff in several different institutions. Overall, scores are high indicating that the package is both easy to use and achieves the learning objectives for completion of tasks. Further work is ongoing to distribute the package across all pediatric renal units in the UK, for more thorough assessment of the impact on patient/family training. Work is also ongoing on a package for home hemodialysis.

Parallel Session 19: Innovation in ESKD: What Should we Take Home

Wednesday, November 29, 2023, 05:20PM-06:00PM, Level 1 | Auditorium

'To Grow Homebased Therapies I Would Envision to Have...'

Eric Goffin

Nephrologist
Saint Luc UC Louvain

Expanding home-based dialysis offer can significantly enhance well-being, quality of live, empowerment …. for individuals in need of autonomous renal care. Here's a pragmatic view on how to stimulate the growth of home-based dialysis:

1. Build a specific self-care dialysis unit where pre-dialysis education is performed and where patients on peritoneal dialysis or home hemodialysis can be trained and be admitted in case of respite care necessity. It is thus mandatory to recruit and train skilled nephrology nurses and technicians proficient in home-based dialysis, ensuring they can provide high-quality care in a home setting.
2. General approach: Employ targeted marketing strategies to increase awareness and accessibility to home-based dialysis services, collaborating with hospital administration, medical, paramedical and technical staff, healthcare providers and patients' association.

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www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

3. Patient Education: Provide adequate pre-dialysis educational program for patients and their families, offering guidance on at-home dialysis procedures, self-care, and ongoing support beyond the dialysis treatments.
4. Patient-Centered Approach: Offer various forms of dialysis, including both peritoneal dialysis and home hemodialysis; then, tailor dialysis modality choice, schedules and treatment plans to fit individual patient needs and preferences, ensuring flexibility and personalization in their care. For home-hemodialysis, this includes the possibility for the patient to perform solo-dialysis and to be dialyzed through a central catheter.
5. Safety Protocols and Standards: Establish comprehensive safety protocols for at-home dialysis procedures, ensuring both patients and healthcare providers are well-protected during these treatments.
6. Care Coordination and Support Service: Set up a framework for continuous support to patients, including regular check-ups, access to helplines, and coordination with local healthcare providers or emergency services.
7. Technological Integration: Integrate telehealth and remote monitoring systems to allow for consultations with nephrologists, virtual check-ins, and remote oversight of dialysis procedures.
8. Feedback and Continuous Improvement: Encourage feedback from patients and healthcare professionals to continually improve home-based dialysis services, ensuring they align with evolving patient needs and advancements in the field. Visit patients at home during a treatment procedure.
9. Compliance and Legal Considerations: Adhere to all legal and regulatory requirements associated with providing home-based dialysis services, ensuring patient safety and quality care.
In summary, the growth and success of home-based dialysis services depend on a combination of using the more-advanced technology, patient-centered care, a well-trained professional team, continuous improvement based on feedback, and compliance with regulatory standards.

Parallel Session 20: Identification and Management of Patients at Risk. Outcome and Vascular Events in Peritoneal Dialysis (IMPROVE-PD) - What Have We Learned?

Wednesday, November 29, 2023, 04:00PM-04:25PM, Level 4

'Overview of the IMPROVE PD Programme'

Manuel Lopez-Cabrera

Research Professor
Consejo Superior De Investigaciones Cientificas (CSIC)

The IMPROVE PD consortium connected leading academic and industrial researchers in the Peritoneal Dialysis (PD) field internationally, who cooperate in the shared goal of understanding the mechanisms of inflammation-driven cardiovascular disease in PD patients, developing individualized approaches to identify those at risk, and testing new therapies in them. This collaboration also formed an outstanding educational platform to train researchers for the future.

To this end, 15 young scientists (Early-Stage Researchers, ESRs) worked in close partnership in 11 institutions located in 7 different countries in an excellent, multidisciplinary and intersectoral pan-European PhD level training programme delivered by leading academic, clinical and industrial stakeholders. Network-wide and local training activities including academies and satellite modules associated with large nephrology conferences, combined with individual research projects, intersectoral secondments and short laboratory visits, provided key generic skills including valorisation, entrepreneurship and intellectual property management and prepared ESRs for future roles as highly skilled research leaders in Europe. To ensure joint supervision at highest level, each ESR had two local supervisors, at least one of whom was clinically qualified and an expert in PD ("clinical" supervisor) and one of whom had extensive experience of fundamental research in the field ("basic" supervisor). Furthermore, each "academic" ESR was supported by an industrial mentor from the private sector, and in case of "industrial" ESRs, these students were endorsed by individually assigned academic mentors. Individual and Personalised Career Development Plan were completed by each ESR, together with their supervisory team.

The main aim of IMPROVE-PD project was to reduce cardiovascular disease and mortality in PD patients by enabling tailored medicine approaches targeted to the individual characteristics of the patient. To achieve this, the consortium together with the selected ESRs worked on three Scientific Objectives:
- Scientific Objective 1: Identifying the patient at risk who will benefit from individualizing therapy, by comprehensively evaluating established international PD patient cohorts and bio-repositories for known and novel markers of inflammation and adverse outcomes.
- Scientific Objective 2: Developing mechanistic understanding of how perturbation of local and systemic inflammatory-immune response leads to adverse cardiovascular outcomes using state-of-the-art models, together with relevant samples from patients.
- Scientific Objective 3: Performing early phase testing of new therapies, improving evaluation of anti-inflammatory/immune modulatory PD fluids and additives, and mechanistic work on their effects, using biomaterial from relevant experimental models and samples from patients.
These scientific objectives have been carried out successfully in three interconnected scientific work packages (WP1, 2, and 3). The main achievements will be presented by the leaders of these scientific WPs.
In addition to these three scientific WPs, the IMPROVE-PD programme consisted of other four WPs related to the aspects of Training,

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https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

Management, Dissemination and Communication, and Ethics requirements.

Parallel Session 20: Identification and Management of Patients at Risk. Outcome and Vascular Events in Peritoneal Dialysis (IMPROVE-PD) - What Have We Learned?

Wednesday, November 29, 2023, 04:50PM-05:15PM, Level 4

'Understanding Mechanisms of Risk'

Donald Fraser

Director
Cardiff University

WP2 comprised 5 ESRs who worked on defining the cellular and molecular inflammatory responses seen in the peritoneum and vasculature in peritoneal dialysis. Local to systemic proinflammatory communication and the sequelae, in particular atherosclerosis and vascular calcification, were studied in experimental models of infectious peritonitis and PD solution exposure developed by consortium members. Immune response and systemic inflammation were linked to intimal and medial layer pathology, and cardiac structure and function were assessed. The impact of specific blocking of immune response pathways was studied. State of the art measurements of cardiovascular phenotype included ex vivo testing of arterial segments' vasodilatory properties, traction force microscopy of isolated vascular smooth muscle cells, sarcoplasmic properties of cardiomyocytes, and in vivo microscopy of leucocyte adherence to mesenteric and other arteries in real-time.

Studies of this WP identified multiple novel aspects of peritoneal to systemic inflammatory communication. Detailed analysis of atherosclerotic plaque in mouse models of PD fluid exposure in the presence of impaired kidney function and atherogenic lipid profile highlighted the importance of T cells and macrophages, and characterized their unique phenotypes in this context. Il-17 and the wider Th-17 immune response was induced in a CKD-accelerated atherosclerosis mouse model, and Il-17 induced hypertension-associated phenotypic change in aortic smooth muscle cells. Aquaporins -1 and -7 were linked to structural and functional change in the peritoneal membrane and to fundamental changes in adipocyte biology, leading to changes in peritoneal visceral fat metabolism. Links were further shown between changes in adipose tissue and changes in water transport in PD. Inflammatory sensing through Damage Associated Molecular Patterns (DAMPs) and Toll Like Receptors was shown to link peritoneal to systemic inflammation, and to be amenable to inhibition of Calprotectin and other DAMPs. Matrix components including Hyaluronic Acid were found to regulate vascular calcification and osteogenic Vascular Smooth Muscle Cell differentiation.

These data identified new processes and pathways linking local peritoneal inflammation to systemic inflammation and vascular pathology, and provided experimental support for the potential of the core mediators as targets for therapy. In addition to the specific scientific manuscripts reporting the findings, reports were generated concerning mouse models and cellular subtyping, the contribution of changes in peritoneal membrane barrier function to cardiovascular disease, and on mechanisms of local to systemic communication of inflammation.

Parallel Session 20: Identification and Management of Patients at Risk. Outcome and Vascular Events in Peritoneal Dialysis (IMPROVE-PD) - What Have We Learned?

Wednesday, November 29, 2023, 05:15PM-05:40PM, Level 4

'New Interventions'

Klaus Kratochwill

Head of Christian Doppler Laboratory MUV
Medical University of Vienna

In this part of the IMPROVE-PD project we investigated novel therapeutic approaches to the PD patient at risk by mode of action research on novel PD fluids in preclinical and early-phase clinical development by early phase testing new therapies based on anti-inflammatory/immune modulatory improvements in PD fluid.

Commercially available PD fluids deliver osmotic water and solute removal at the cost of engendering local inflammation, peritoneal membrane alterations, and risk of infection. There is a track record of innovations with widespread clinical uptake in this area, which includes biocompatible (e.g. low glucose degradation product content) fluids, novel osmotic agents (e.g. icodextrin) and amino acid supplementation. These innovations have resulted in clinically relevant benefits including preservation of residual kidney function and mitigated uncontrolled fluid overload, but without significant effect on technique survival, patient survival or cardiovascular events.
The regular instillation of dialysate to the peritoneal cavity gives a unique opportunity to test local and systemic effects of immune-

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https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

modulatory therapy. Recent work of these beneficiaries has identified three novel PD-fluids based on 1) anti-inflammatory additives, 2) signalling pathway inhibitors, 3) replacement osmotic agents that have the potential to alter mechanisms relevant for cardiovascular outcome, delivered direct to the inflamed tissue.

This part of the IMPROVE-PD project comprised five projects of early stage researchers ranging from mode-of-action research to deepen the understanding of novel PD fluids at different stages from early clinical (PD-protecTM) to preclinical development (Stevioside, Troxerutin, ICO-protecTM) via evaluation of novel PD fluids not yet in commercial production regarding patient safety using qualitative research methods, to a bioinformatic approach, matching potentially new additives to CVD-related molecular processes and/or anti-inflammatory processes.

A translational pipeline for early phase studies of novel anti-inflammatory therapies in PD was established through research during commercial development of novel PD-fluids to deepen the mechanistic insights of the effect of the tested PD fluids. Readouts were characterised in terms of their potential effects on the risk phenotypes and molecular and immune cell signatures developed in the other parts of the project and translated into pathways to improve patient access to anti-inflammatory cardiovascular-protective therapies in PD. This presentation will summarize the results of the IMPROVE-PD PD fluid translational pipeline regarding the research approach, key findings, and outlook.

Parallel Session 20: Identification and Management of Patients at Risk. Outcome and Vascular Events in Peritoneal Dialysis (IMPROVE-PD) - What Have We Learned?

Wednesday, November 29, 2023, 05:40PM-06:05PM, Level 4

'Future Directions'

Christoph Aufricht

Head of Division of Pediatric Nephrology and Gastroenterology
Medical University of Vienna

IMPROVE PD has undoubtedly provided fundamental new insights into specific risk profiles, pathomechanisms and innovative peritoneal therapies mediated by PD.
However, even today, any form of dialysis treatment (PD and HD) is still associated with a lower life expectancy than most cancers, in large part due to inflammation-mediated vascular disease. However, there is a significant communication gap between PD research and European CVD disease research scientists. As a result, the potential for targeted treatment of the peritoneal-CVD axis is largely untapped and corresponding peritoneal interventions are insufficiently researched. In 2024, the European PD patient will ultimately have a choice between the same PD solutions as they did over 25 years ago.
15 researchers from 7 countries have submitted a follow-up project to IMPROVE PD. This project, called EUDOPD (Engaging Unresolved Disconnects to Optimize PD), focuses on bringing together expertise from different fields to jointly address different aspects of immune metabolism and chronic diseases to support the transformation of PD towards improved outcomes. As with IMPOVE-PD, the EUDOPD research program will be divided into three scientific work packages, which will be briefly presented in this lecture.

Parallel Session 25: Pro/Con Debates

Thursday, November 30, 2023, 11:00AM-11:20AM, Level 1 | Auditorium

'PD has an Expiry Date at Which Patients Should be Transferred to HD: PRO'

Anabela Rodrigues

Nephrology Consultant and Associate Professor of Nephrology
University of Porto

Person-centred advanced CKD management calls for integrated care plans. It is as important to offer PD first to eligible patients (since it promotes better earlier patient survival and optimizes clinical resources), as to design ad initium an individualized plan of treatment transitions to improve global patient life experience and outcomes.
Transferring a patient from peritoneal dialysis (PD) to haemodialysis (HD) may be necessary in certain situations. A brief summary of definite indications for such a transfer include:
1. Recurrent or severe peritonitis that doesn't respond to treatment
2. Inadequate dialysis clearance after adequate adjustment of PD prescription
3. Sustained fluid overload due to either peritoneal membrane insufficiency and/or patient incompliance with dietary restrictions
4. Catheter unsolvable dysfunction or acute abdomen (surgical, oncological, inflammatory)
5. Peritoneal membrane acquired fast transport with loss of free water removal capacity
6. Lack of self-dialysis capacity in the absence of assisted PD (family or nurse)

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ISSN 2607-9917

7. Patient request to change modality.

Option to abandon PD in the absence of complications is seldom occurring which testimonies that the home modality is mostly patient friendly.

However, burnout may occur with longer stay in dialysis without faster or viable access to renal transplant. In these cases, shared decision making is mandatory, with proactive search of individualized solutions and support.

In all situations, the aim should be to plan a safe modality transition, including different regimens of hemodialysis (nocturnal, home, in centre) and, in the extremes of hope, living donor transplantation and non-dialytic supportive care.
Regular assessment and monitoring play a crucial role in determining when a transfer is necessary to optimize renal replacement therapy.

Specifically:
1. Level patient career in terms of number of peritonitis and hospital admissions
2. Assess the patient's peritoneal membrane function through routine peritoneal equilibration tests (PET) and adequacy measures with focus on achieving stable euvolemia
3. Evaluate patient reported outcomes such as EQ-5D, prioritizing pain and functionality dimensions to intervene -this may be an add-on in the transition process.

Offering assisted PD in case of frail patients might be qualitatively better than transferring them to HD. On the other hand shared decision making should also guide the choice of haemodialysis modality with timely and safe vascular access surgery, avoiding whenever possible central venous catheters (CVC) or cumulative days of CVC use.
The quality of the transition process must be controlled assuring less disrupting patient experience and safe continuity of care. Clinical communication among dialysis Units and shared health data management should be a pilar of the quality of such transition process, adopting a new paradigm of embracing change as an opportunity to improve life with sustainable use of resources in Integrated Dialysis Units.

Parallel Session 22: Peritoneal Access

Thursday, November 30, 2023, 09:10AM-09:30AM, Level 1 | Auditorium

‘Let’s Not be Blind for Alternatives’

Karlien François

Nephrologist
UZ Brussel

In an ideal world, a patient who presents with kidney failure had prior nephrology follow-up, during which he or she was prepared for a planned dialysis start with a functional dialysis access. However, in real life, up to a third of incident dialysis patients did not have prior nephrology follow-up and moreover, unplanned dialysis start also occurs in patients with prior nephrology care. This results in a suboptimal dialysis start in up to 50% of incident dialysis patients. These patients start dialysis without prior dialysis modality education, and they start hemodialysis (HD) using a (non-) tunneled central venous catheter or require an urgent-start of peritoneal dialysis (PD).
Each dialysis center should organize its PD access program to ensure that PD access is available for both planned and unplanned dialysis starters. A timely and successful insertion of PD catheters is a prerequisite for increasing the long-term use of peritoneal dialysis.

Surgically inserted PD catheters, especially when inserted using an advanced laparoscopy approach, are associated with good functional outcomes and low rates of procedural and infectious complications. Nevertheless, many centers and nephrologists struggle with surgeon and anesthesiologist’s availability, and operating room capacity. Also, patients with medical contraindications for general anesthesia might benefit from an alternative approach not requiring general anesthesia.

Using a modified Seldinger technique, PD catheters can be inserted “percutaneously” at the bedside under local anesthesia. Different variants of percutaneous PD catheter insertion vary in the specialty of the operator, whether or not image guidance by fluoroscopy or ultrasound is used, in incision site (subumbilical or paramedian) and whether or not low dose sedation is applied.
The general principles of percutaneous PD catheter insertion are:
(i) Puncture of the peritoneal cavity,
(ii) Prefill of the retro-uterine or retro-vesical pouch using saline, dialysis fluid or a contrast solution,
(iii) Insertion of a guidewire through the needle into the peritoneal cavity and directed towards the pelvis,
(iv) Dilator with overlying peel-away sheath is advanced through the fascia over the guidewire,
(v) After removing the guidewire and dilator, the catheter is inserted through the peel-away sheath, advancing the deep cuff to the level of the fascia,
(vi) After testing catheter flow function, the catheter is tunneled subcutaneously to the selected exit site. Percutaneous PD catheter

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https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917

insertion is associated with good success rates and good catheter survival. Observational data show that percutaneous PD catheter insertion is safe in terms of mechanical and infectious complications compared to surgical PD catheter insertion.

Although the ISPD guidelines suggest limiting percutaneous PD catheter insertion to patients with no history of abdominal surgery or peritonitis, the UK Renal Association recognizes its value in creating timely PD access even in patients with previous abdominal surgery or peritonitis.

A percutaneous PD access program provides flexible availability for PD access and supports the timely creation of PD access. In particular, a percutaneous PD catheter insertion can facilitate the use of PD in urgent or unplanned dialysis starters and in frail patients with comorbidities that are not suitable for safe use of general anesthesia.

Référence: Francois K, De Clerck D, Robberechts T, Van Hulle F, Van Cauwelaert S, Luyten I, Jacobs-Tulleneers-Thevissen D. Percutaneous insertion of peritoneal dialysis catheters by the nephrologist (modified Seldinger technique). Bull Dial Domic [Internet]. 2021;4(4):277-288. Available from: https://doi.org/10.25796/bdd.v4i4.63393

Parallel Session 25: Pro/Con Debates

Thursday, November 30, 2023, 11:20AM-11:40AM, Level 1 | Auditorium

'PD has an Expiry Date at Which Patients Should be Transferred to HD: CON'

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Peritoneal dialysis does not have an expiry date at which patients should be transferred to hemodialysis. Peritoneal dialysis is associated with similar survival compared to in-center hemodialysis. Furthermore, PD patients often experience better quality of life and longer preservation of residual renal function. Knowing that, the statement that PD has a natural expiry date is a saying that might cause lower PD utilization than preferable for our patient population. Many patients start on peritoneal dialysis but to many transfer to in-center hemodialysis due to different causes. Technique survival is therefore a core outcome in PD. In order to improve time on PD for our patients we will have to identify patient-related risk factors and modifiable causes of technique failure. Infection remains a leading cause of technique failure and transfer to in-center hemodialysis worldwide followed by poor water or solute clearance. Patient burnout is also an important factor in transfer from PD to in-center HD. With improved predialysis education and care of our patients and continuous education and motivation of health personnel including multidisciplinary approach, less focus on small solute clearance and more focus on quality of life as well as more use of assisted PD we should be able to, if not eliminate the myth of expiry date of PD than at least prolong PD vintage and by that improve survival and quality of life of our patients.

*journal officiel du **R**egistre de **D**ialyse **P**éritonéale de **L**angue **F**rançaise* **RDPLF** www.rdplf.org

www.bdd.rdplf.org Volume 4, supp, november 2023
https://doi.org/10.25796/bdd.v6i3.81673
ISSN 2607-9917