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Transitioning from Pediatric- to Adult-focused Dialysis Care: A Systematic Review with Recommendations

Background: There is limited data evaluating the practices of nephrologists who prepare dialysis-dependent adolescents and young adults (AYA) for healthcare transition (HCT) from pediatric- to adult-focused healthcare. The aims of this manuscript are to 1) critically evaluate the current evidence and experiences surrounding HCT from pediatric- to adult-focused dialysis units and 2) make recommendations that can be implemented for this process.
Methods: We searched PubMed, EMBASE, CINAHL, COCHRANE, and clinicaltrials.gov to identify studies that pertain to the HCT of AYA patients from pediatric- to adult-focused dialysis care.
Results: A total of 14 studies were included and were grouped into subcategories to facilitate data synthesis: HCT process, preparedness of patient and family, preparedness of adult-focused nephrology providers, barriers to HCT, and quality of life. These included studies highlight the importance of creating an HCT process with a formal policy. They focus on the importance of patient and family preparedness and on measuring HCT readiness using standardized scales. They also underline the importance of identifying adult-focused nephrology 'HCT champions' to care for AYA requiring dialysis. Lastly, they emphasize the importance of measuring the quality of life in AYA patients to ensure optimal patient-centered HCT.
Conclusion: There is limited data on HCT for AYA with ESKD. Upon review and analysis of current literature, we recommend: creating a formal, written HCT policy; setting achievable goals for health self-management and conducting regular assessments of HCT readiness; identifying a lead or 'champion' at an accepting adult-focused dialysis unit and ensuring good communication between pediatric and adult providers; and completing annual quality-of-life assessments.

Case Report **Published Date:-2024-03-18 12:06:03**

Porphyria Cutanea Tarda (PCT) in a Patient, Treated with Hemodialysis after a Kidney Transplant Rejection Reaction: A Case Report

Porphyrias are a group of inherited metabolic disorders of haem biosynthesis, involving a deficiency in the enzyme uroporphyrinogen decarboxylase. In this case report we present a case of a patient with porphyria cutanea tarda (PCT). A 40-year-old man on hemodialysis after a kidney transplant rejection reaction, complaining of skin changes, with a history of smoking and alcohol intake. Treated with Fusidic acid Betamethasone cream, and erythropoietin. Porhyria cutanea tarda can be considered in a patient who complains of skin changes. History of alcohol intake, smoking, high ferritin levels, and increased hepatic markers can raise suspicion of disease. In patients with ESRD treatment with erythropoietin, SPF 50+ sun cream, Fusidic acid, and Betamethasone can be effective.

Research Article **Published Date:-2024-03-06 17:04:36**

Assessment of the Quality of Life of the Caregiver of Pediatric Patients with Chronic Kidney Disease in a Tertiary Health Care Facility

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Background: Long-term care for patients with chronic kidney disease, whether in the pre or post-dialysis period, has a destructive impact on patients and their caregivers that can significantly worsen their quality of life.
Objectives: To assess the quality of life (QOL) among caregivers of children suffering from chronic kidney disease and to identify the possible factors affecting their quality of life.
Subjects and methods: Between March 2023 and May 2023, a cross-sectional questionnaire-based study was conducted at King Saud Medical City for caregivers of all pediatric patients aged from 6 months to 14 years with CKD stage-3B and beyond who have been followed up for at least three months in the pre or post-dialysis period since 2015. The study applied the World Health Organization Quality of Life Questionnaire (WHOQOL-BREF) to evaluate the caregivers' quality of life.
Result: A total of 95 caregivers were involved in the study. The age ranged between 24 and 53 years, with an arithmetic mean of 39.3 and a standard deviation of (± 6.6) years, and almost two-thirds (65.3%) were Saudi nationals. Most pediatric patients were on peritoneal renal dialysis (41%), whereas 29.5% were on hemodialysis. The mean and SD of the overall score was 56.10 ± 17.40 out of a possible range of 0-100. Regarding its domains, the highest score was observed regarding the social domain (62.11 ± 21.12), whereas the lowest was the physical domain (49.55 ± 18.42). After controlling for confounding, married, high socio-economic, and more educated caregivers have higher QOL scores than singles, low socio-economic, and lower knowledgeable caregivers, and the three factors together were responsible for approximately 41% variability of the QOL score (r – square = 0.406). Bivariate Pearson correlation showed significant correlations among different quality-of-life domains ($p < 0.001$).
Conclusion: There was a significant association between quality-of-life scores and demographic characteristics of chronic kidney disease caregivers; they need the highest support to cope with their delicate patients.

Research Article **Published Date:-2024-03-04 17:01:35**

[The Effect of Residence Time of No-tunneled Hemodialysis Catheters on Infection and Thrombosis Outcome. Identification of CVC's Time Cut-off]

Introduction: Permanent vascular access (arteriovenous fistula (AVF), arteriovenous graft (AVG)) is susceptible to acute events that reduce patency. The temporary central venous catheter (CVC) constitutes bridging therapy for primary vascular access dysfunction. The impact of "residence time" on the rate of dysfunction/thrombosis or infection remains to be explored.
AIM: 1) To evaluate the impact of CVC residence time on outcomes (infection or Thrombosis/dysfunction) in consecutive temporary CVCs adjusted for the insertion site (upper site vs. lower site).
2) To establish a cut-off resident time.
Patients and methods: Seventeen prevalent hemodialysis patients with three consecutive CVCs are followed up prospectively in an observational study for a period equivalent to the permanence of the CVCs. The data is recorded at the beginning of the CVC time. The diagnosis of catheter-related bloodstream infection and thrombosis/dysfunction is made following the K-Doqi 2019 guidelines.
Statistical analysis: Seventeen hemodialysis patients (51 CVCs) were included. The 'CVC resident time' of each individual patient ((i.e. ?coefficient (log-transformed)*AUC)) was determined using LMM and then inserted into multivariate Cox models to assess infection and dysfunction/thrombosis outcomes (Joint Models). The AUC was calculated at various baseline levels of CVC time (10th……50th percentile). The cut-off point for thrombosis in CVC time corresponds to the mean of the CVC time at the 30th percentile of all CVCs.
Results: The CVC time is different for CVC's site insertion and sequence. From the analysis of multivariate joint models, CVC resident time appears not to be significant for infection, but heterogenicity for the insertion site (ref3-4=upper site) is significant for the outcome of thrombosis/dysfunction. From the study of survival analysis, the free survival from outcomes by CVC site insertion appears to be significant for thrombosis/dysfunction. The average time of CVCs' calculation at the 30th percentile is 14 days (cut-off).
Conclusion: No tunneled hemodialysis Catheter (NTHC) residence time is considered not to be a risk factor for infection, but it represents a risk factor for lower access thrombosis. After the cut-off time of 14 days, the advantage of the higher NTHCs is lost.

Research Article **Published Date:-2024-02-28 12:28:44**

[Exit Site Care in Peritoneal Dialysis: Silver as a Possible Strategy?]

Peritoneal dialysis (PD) is a well-tolerated home renal replacement therapy for patients with end-stage renal disease. One of the critical points for the success of a PD program is the care of the peritoneal catheter and the exit site. A target for the incidence of infections/year should not exceed 0,40. The aim of the study was to observe whether our exit-site cleansing and dressing method, which involves the application of silver-releasing dressing may be associated with a reduction in the incidence of exit-site infections compared to the data reported in the literature. The data of 51 patients attending the Peritoneal Dialysis DH of the AOU Federico II in Naples in the period between July 2021 and September 2023 were analyzed.
Overall, 27670 catheter days were analyzed with an average incidence of 0.23 infections/year/patient. The average incidence (0.23) is lower than the target suggested by the ISPD (0.4 infections/year/patient) and the average estimated in the USA (0.5-0.6 infections/year/patient). The average incidence from 2021 to 2023, equal to 0.23 episodes/year/patient, is therefore lower than the incidence of 2014-2015 (0.38 episodes/year/patient), a two-year period in which we did not use dressings with silver Exit-Pad.
The use of Exit-Pad silver ion-releasing dressings Ag may further hinder the development of such infections by reducing the failure of peritoneal treatment and the transition to hemodialysis.

Review Article **Published Date:-2024-02-20 12:28:42**

Efficiency, Effectiveness and Clinical Results of Extracorporeal Therapies in Non-Renal Settings: How are they to be evaluated? The Case of their Application in Liver Failure

There are various Extra Blood Purification Therapies (EBPTs) used in the context of critical care, including but not limited to Acute Kidney Injury (AKI). These therapies aim to remove toxins, inflammatory mediators, and excess fluids from the bloodstream. While some blood purification therapies were initially developed for renal support, they have been explored for use in other medical conditions as well, including liver pathologies and sepsis. Here is a brief explanation of some therapies such as MARS (Molecular Adsorbents Recirculating System), Prometheus, CPFA (Coupled Plasma Filtration Adsorption), PAP (Plasma Adsorption), and SPAD (Single-Pass Albumin Dialysis). Some of these therapies have entered clinical use, while others have faced challenges, such as negative evidence, poor purifying efficacy, or difficulties in practical use. The field of extracorporeal liver support is dynamic, with ongoing developments aimed at improving the effectiveness and practicality of these therapies. Sorbents mark the latest frontiers in blood purification to remove various toxic molecules, with specific emphasis on the modulation of bilirubin and other substances in critically ill patients suffering from liver failure. In the above-mentioned pathologies, substances may be continuously generated within the body, and Mass Balance is the only valuable tool for distinguishing between generation and removal processes. The effectiveness of sorbents in removing bilirubin and bile acids, as demonstrated in both in vitro and in vivo studies, distinguishes them and shows their superiority over traditional liver cleansing methods, such as CPFA, PAP, SPAD, Prometheus, and MARS.

Observational Study **Published Date:-2024-01-29 10:49:32**

Cognitive Impairment in Renal Replacement Therapy: Comparison between Methods

Cognitive impairment (CI) can be defined as a clinical syndrome characterized by a decline in at least two of several domains of cognitive function. Chronic kidney disease (CKD) is an independent risk factor for cognitive decline, and the prevalence in patients with end-stage renal disease is estimated at 50% - 80%. However, it appears that CI in patients on renal replacement therapy (RRT) may be underdiagnosed. In this cross-sectional study, 33 patients on Peritoneal Dialysis from the AOU Federico II were recruited, and matched by sex, age, and dialysis age to 33 patients on Hemodialysis and 33 controls belonging to healthy volunteers. The total 66 patients and their 33 controls were assessed for cognitive function using the Cognitive Reserve Index Questionnaire (CRIq) test. Between PD and HD patients, a statistically significant difference emerged in all subscores and in the total CRI. Between PD patients and controls, a statistically significant difference emerged in education, CRI- CRI-leisure time, and the total CRI. Therefore, CI may occur in patients undergoing PD earlier and with a greater frequency than in the general population, but with a lower incidence than in patients on HD. These considerations should be communicated to patients when they are educated about different replacement methods.
