

economic benefits following the incorporation of the BestShape in medical institutions across Taiwan.

Methods: This is a retrospective study. From January 1, 2020, two medical institutions in Taiwan (Mackay

Memorial Hospital Taipei and Tamshui branches) incorporated BestShape into all hemodialysis (HD) sessions. The Vital Info Portal (VIP) gateway, connected to the HD device, collected the parameters in each HD session. The data from consecutive HD sessions spanning from January 2020 to September 2023, following the implementation of BestShape, constituted the observational group. The data retrieved from January 2019 through the end of 2019 served as the historical control group. The primary outcome was the frequency of IDH, and the secondary outcomes were the rates of cardiopulmonary resuscitation (CPR), fall, and providers' satisfaction, mortality rates, and estimated total cost reduction.

Results: A total of 104,117 HD sessions during the study period were included (observational group: 66,683; control group: 37,434 sessions) for analyses. The monthly average IDH rates decreased significantly from 27.4% to 20.3% ($p < 0.05$) after incorporation of BestShape. The occurrences of

CPR during dialysis decreased from 5 to 3 times, resulting in an estimated total cost reduction of 47 thousand USD annually. In addition, post-dialysis falls decreased from 5 to 1 times. The mortality rates during the HD sessions prior to (2017-2019) BestShape implementation were 8.3%, and 10.6% afterwards (2020-2022), with no statistically significant differences. The medical staff expressed significant satisfaction with BestShape, as evidenced by average satisfaction scores of 86.5 and 85.5 in Tamshui and Taipei branch, respectively.

Conclusions: This study presents the initial outcomes of incorporating BestShape within Taiwanese hospitals, revealing a high level of satisfaction among medical staff and achieving notable reductions in IDH, CPR incidents, and falls. These improvements hold the potential for substantial reductions in healthcare costs.

I have no potential conflict of interest to disclose.

WCN24-1041

OXIRIS MEMBRANE PERFORMANCE IN PATIENTS WITH SEPTIC SHOCK AND CONTINUOUS KIDNEY REPLACEMENT THERAPY REQUIREMENT: A RANDOMIZED CONTROLLED TRIAL

Omar Fueyo Rodríguez^{*1}, Adrián Esteban Caballero Islas², Pablo Enrique Galindo Vallejo³, Noemí Del Toro Cisneros², Néstor Humberto Cruz Mendoza², Karina Charlotte Félix Bauer², Mauricio Arvizu Hernández², José Ricardo Correa Rotter², Olynya Vega Vega²

¹Mexico, Department of Nephrology and Mineral Metabolism, Mexico; ²Department of Nephrology and Mineral Metabolism, Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán, Mexico, ³Department of Nephrology and Mineral Metabolism, ISSEMyM Ecatepec, Mexico

Introduction: The highly selective semipermeable Oxiris membranes have shown to provide endotoxin adsorption and removal of different inflammatory cytokines which could improve hemodynamic stability in patients with septic shock and continuous kidney replacement therapy (CKRT) requirement. The aim of this study was to compare the clinical efficacy of CKRT using an Oxiris membrane to maintain the mean arterial pressure (MAP) > 65 mmHg, after 72 hours of treatment, with a lower vasopressor dose than the use of a conventional AN69 standard membrane.

Methods: Multicenter randomized controlled trial in critically ill patients with documented infection, on invasive mechanical ventilation, and the need of CKRT. Patients were randomized to receive continuous veno-venous hemodiafiltration using either an AN69 standard membrane or an AN69 Oxiris membrane. Regional citrate anticoagulation was used, all patients had a prescribed dose of 30 mL/kg/h for 72 hours, and the filters were changed every 24h. Clinical variables were registered, and vasopressor dependency index was calculated to express the relationship between vasopressor dose and MAP.

Results: Twenty-five patients have been included, 12 (48%) in the Oxiris group and 13 (52%) in the control group. The most common infection was pneumonia, 32% due to COVID-19, and the mean initial SOFA score was 11 points. There were no differences in MAP between the groups (Oxiris vs. Control) at 0, 24, 48 and 72 hours; 70 vs 70, 70 vs 79, 73 vs 77 and 79 vs 74 respectively. The rate of vasopressors was not different at baseline, 24, 48, and 72 hours, as shown in Figure 1. Fluid removal tended to be greater in the control group than in the Oxiris

group with a median rate of 1,17 vs 0,53 ($p = 0.05$) at 24 h, 1,17 vs 1,15 at 48 h ($p=0.57$), and at 72 h with a rate of 1,21 vs 0,73 mL/kg/h ($p=0.13$). There were no differences in daily fluid balance.

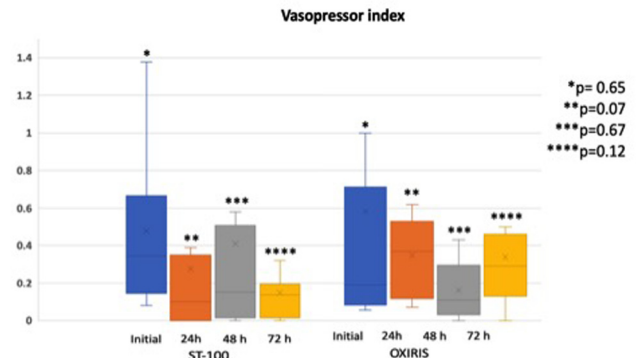


Figure 1. Rate of vasopressors in both groups.

Conclusions: In this study there were no differences in the requirement of vasopressors to maintain hemodynamic stability in patients with septic shock and CKRT using the Oxiris membrane compared to the standard membrane.

I have no potential conflict of interest to disclose.

WCN24-1050

METHOD FOR AN EFFECTIVE IDENTIFICATION OF PARATHYROID GLANDS IN HEMODIALYSIS PATIENTS WITH SEVERE HYPERPARATHYROIDISM FOR ADEQUATE PARATHYROIDECTOMY AND ITS RESULTS

Renata Vakhitova^{*1}, Sergey Zinchenko², Ilfat Galiev², Rafael Minabutdinov²

¹Kazan, Dialysis, Russia, ²Surgery 2, University Clinic Kazan Federal University, Kazan

Introduction: Severe secondary and tertiary hyperparathyroidism (HPT) in patients undergoing chronic hemodialysis is one of the most important problems of clinical nephrology. The removal of altered parathyroid glands has a number of difficulties due to possible anatomical features of their location. Isolation and differentiated intraoperative visualization of the parathyroid glands is extremely important for an adequate amount of surgical intervention.

Methods: 32 patients with severe hyperparathyroidism underwent parathyroidectomy. The age of patients was from 26 to 71 years old. Patients were divided into two groups according to the oral administration of 5-aminolevulinic acid for intraoperative imaging of the parathyroid glands: in 12 patients it was used, in 20 patients it was not used. Secondary and tertiary hyperparathyroidism was diagnosed in patients with C5D stage CKD by a significant or persistent increase in the level of intact parathyroid hormone (iPTH) more than 600 pg/ml and enlarged parathyroid glands detected by ultrasound. For intraoperative identification of changed parathyroid glands in the first group the oral administration of a solution of 5aminolevulinic acid was used (given in 180 minutes before the start of surgery at a dose of 10 -15 mg / kg body weight). Then the surgical field was irradiated with polarized blue light with a wavelength of 395-405 nm to record fluorescence. In both groups if unchanged or less changed areas of the parathyroid gland were found, they were autotransplanted into the forearm. Achievement of the target iPTH level, hypocalcemia in the early postoperative period, and hypoparathyroidism were assessed in the postoperative period. The obtained data were analyzed using nonparametric statistical methods.

Results: Specific bright red fluorescence and luminescence of the parathyroid glands caused by special external sources of polarizing blue light during the operation were observed in all 12 patients of the first group. In the of first group patients operated with 5-aminolevulinic acid: in 9 patients it was possible to achieve the target postoperative reduction in iPTH levels; in 3 patients there was a slight decrease or iPTH was above target values (< 130 pg/ml). In the second group, in 13 patients it was possible to achieve a target postoperative reduction in iPTH levels; in 7 patients there was a slight decrease or iPTH was above target values. The use of intraoperative visualization of the PTG significantly influenced the achievement of the target level of

iPTH ($P = 0.26$ ($P > 0.05$)). Hypocalcemia in the early postoperative period was detected in 7 patients, hypoparathyroidism in 7 patients in the first group. 13 people had hypocalcemia and 6 people had hypoparathyroidism in the second group of patients. There was no effect of the use of intraoperative imaging with oral administration of 5-aminolevulinic acid on hypocalcemia in the early postoperative period (chi-square < 3.84) and on the incidence of postoperative hypoparathyroidism ($P < 0.05$).

Conclusions: Intraoperative fluorescence diagnostics of the parathyroid glands with preoperative oral use of 5-aminolevulinic acid is a simple and effective method of their visualization. This method significantly affects the achievement of target postoperative iPTH level; does not affect the incidence of postoperative hypocalcemia and hypoparathyroidism.

I have no potential conflict of interest to disclose.

WCN24-1057

ENHANCING GAIT AND PHYSICAL ACTIVITY IN HEMODIALYSIS PATIENTS: A RANDOMIZED TRIAL OF INTRADIALYTIC ELECTRICAL STIMULATION



Abdullah Hamad^{1*}, Abdullah Hamad Hamad², Myeounggon Lee³, Jaewon Beom³, Naima Rodriguez³, Abderrahman Ouattas³, Rania Ibrahim², Heba Mohamed Ateya², Mincy Mathew², Talal Talal⁴, Bijan Najafi³, Fadwa Al-Ali²

¹Doha, nephrology, Qatar; ²Nephrology Division, Hamad Medical Corporation, Doha; ³Department of Surgery, Baylor College of Medicine, Interdisciplinary Consortium on Advanced Motion Performance (iCAMP), Michael E. DeBakey, Houston, Texas; ⁴Diabetic Foot and Wound Clinic, Hamad Medical Corporation, Doha

Introduction: Patients receiving hemodialysis (HD) often experience fatigue, time constraints, and impaired mobility, leading to frailty. This condition invariably contributes to a decline in gait performance, decreased physical activity, a compromised quality of life, as well as a heightened mortality risk. Recent explorations propose the potential for intradialytic electrical stimulation (E-stim) as a method of augmenting physical activity and mobility capabilities. The purpose of our study was to test the efficacy of a 12-week intradialytic plantar E-stim intervention in outpatients subjected to HD as a result of this premise.

Methods: Participants were allocated randomly into two groups: the intervention group (IG, $n=48$) and the control group (CG, $n=49$). Those in the IG received a one-hour plantar E-stim treatment concurrent with their regular tri-weekly HD sessions. The CG, on the other hand, had a visually identical but non-operational device applied for the same duration over a 12-week period. In the straight walkway, gait tasks were conducted including single-task (i.e., habitual walking), dualtask (DT: walking while back-counting numbers), and faster walking (FW). To assess daily physical activity, participants wore a monitoring pendant for two consecutive days both at the onset of the study and following the 12-week intervention.

Results: A total of 97 HD patients were successfully recruited (IG ($n=48$): age = 54.51 ± 11.95 years; Body mass index = 30.79 ± 6.21 kg/m²; Female = 30.6%; pre-frail to frail = 83.7%; Diabetes duration: 21.04 ± 7.52 years; CG ($n=49$): age = 53.42 ± 14.18 years; Body mass index = 31.14 ± 6.99 kg/m²; Female = 31.90%; pre-frail to frail = 85.4%; Diabetes duration: 18.54 ± 7.56 years), and age, BMI, sex, and frailty rates are not significantly different between IG and CG. Remarkable group*time interaction effects were noted in terms of gait performance at DT (stride time: $p=0.031$, $d=0.449$; cadence: $p=0.029$, $d=0.459$) and FW (stride time: $p=0.032$, $d=0.449$; cadence: $p=0.014$, $d=0.514$) (Figure 1). In addition, postural transition parameters in physical activity showed significant group*time interaction effects in stand-to-walk ($p=0.018$, $d=0.496$), stand-to-sit ($p=0.021$, $d=0.483$), and sit-to-walk ($p=0.021$, $d=0.483$) (Figure 2). The IG demonstrated notable enhancements in cadence at DT (+7.38%, Cohen's $d=0.575$) and stand-to-walk (+16.7%, Cohen's $d=0.227$) from baseline to the 12-week mark. In contrast, the CG showed relatively little improvement in cadence at DT (+2.45%, Cohen's $d=0.217$) and decreased stand-to-walk (-10.30%, Cohen's $d=0.178$).

Conclusions: This study highlights that a 12-week regimen of intradialytic plantar E-Sim substantially enhances both gait performance and physical activity in HD patients. In light of these findings, it is recommended that E-Stim be integrated into routine hemodialysis treatment as an adjunctive measure to enhance and maintain functional performance for patients.

I have no potential conflict of interest to disclose.

WCN24-1066

BRIDGING THE GAP: INTEGRATING THE MULTIDISCIPLINARY EQUIPMENT ON HEMODIALYSIS VASCULAR ACCESS FROM LATIN AMERICA AND PERÚ



Edwin Castillo Velarde^{*1}

¹Lima, Medicine, Peru

Introduction: In many countries as Peru, there is a high prevalence of central venous catheter (CVC) use with many complications associated. In this report, it was reviewed the gap between the demand and supply on vascular access (VA) regarding CKD prevalence, health systems, availability of health workforce, and multidisciplinary equipment. Data from Peru was compared to Latin America because there is an effort to improve the care on VA in this country. In Peru, hemodialysis, HD (85.9%) is the predominant renal replacement modality. The native arteriovenous fistula (nAVF) use in the prevalent Peruvian population (24%) is lower than in Argentina (67.6%) or Uruguay (47.6%).

Methods: Narrative review. A broad literature review of VA epidemiology data, the national health systems, and key stakeholders (national nephrology societies).

Results: 1. The gap between demand and supply

Peru has a population of 32.5 million at 2019 with a prevalence of dialysis-dependent CKD of 974 per million inhabitants (pmp). In 2016, Peruvian Social Security reported 10,710 patients being treated with dialysis with 7,778 receiving coverage from public health insurance.

Peru has a tripartite health system: public (61%), social security (33%), and private (4%). The health per capita cost was \$626 in 2016, lower than Chile and Uruguay. The rate of nephrologists is 1.7 ppm, while in Latin America has been reported 19 ppm in 2019 (the recommendation of the Pan-American Health Organization is 20 ppm) 8-10. In 2022 there was 565 nephrologists, 302 cardiovascular surgeons, and 13 interventional radiologists.

In Peru, most of the HD population is centralized in cities such as Lima. The demand for nAVF creation from the incident population is 27 patients per month at one national referral Hospital, which would require attention by vascular surgery for 2-3 shifts per week, however, the priority is directed for other procedures (figure 1). Further, there is a previous late referral. In case of interventional radiology, there is a demand for other procedures, hence, there is deferral attention for all VA procedures including angioplasty or thrombectomy. Additionally, many patients need a cavography before the nAVF creation because of central venous occlusion, however, many nephrology departments did not have c-arm fluoroscopy or training for using it Figure 1.

