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- POS-587 RELATIONSHIP BETWEEN DURATION OF ROUTINE HEMODIALYSIS WITH CALCIUM PHOSPHATE PRODUCTS IN CHRONIC KIDNEY DISEASE PATIENTS IN DR. RAMELAN NAVAL CENTRAL HOSPITAL SURABAYA**
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Published in issue: February 2022
S253
[Full-Text HTML](#) | [PDF](#)

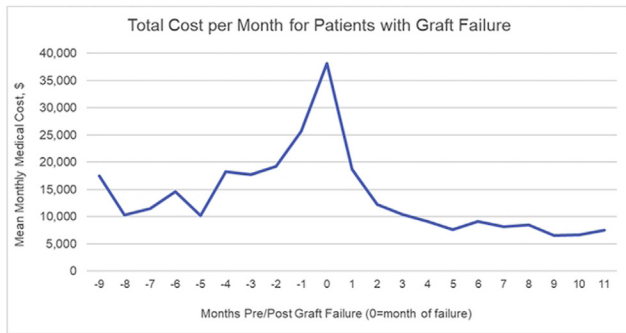
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[Full-Text HTML](#) | [PDF](#)

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S254
[Full-Text HTML](#) | [PDF](#)

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Y. SETYAWAN
Published in issue: February 2022
S254
[Full-Text HTML](#) | [PDF](#)

- POS-592 COMPARATIVE ANALYSIS OF THE CAUSES OF DEATH IN DIALYSIS PATIENTS WITH AND WITHOUT CARDIOVASCULAR DISEASES**
O. SHARAPOV, B. Daminov, S. Abdullaev
Published in issue: February 2022



Conflict of interest

Potential conflict of interest:

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POS-582

ASSOCIATION BETWEEN T SCORES, FRAX SCORES, FRAILTY, FALLS, AND FRACTURES IN PATIENTS UNDERGOING MAINTENANCE HEMODIALYSIS

Jafari, M¹, Kour, K¹, Sharma, A¹, Prasad MD, B^{*2}

¹Dr T. Bhanu Prasad Medical Prof Corp, Nephrology, Regina, Canada, ²Regina General Hospital, Medicine, Regina, Canada

Introduction: Despite the magnitude and consequences of fracture in hemodialysis patients, optimal risk assessment tools in this population are not well explored. Frailty and falls—known risk factors for fracture—are common in hemodialysis patients. While the relationship between T scores in relation to fractures in these patients is recognized, there is a paucity of data to the additional contributions of fracture assessment tool (FRAX), frailty, and falls in relation to fractures. Therefore, we intended to evaluate the clinical utility of adding these factors to T scores at the femoral neck to determine whether it enhances fracture discrimination in hemodialysis patients.

Methods: We conducted a cross-sectional study on 131 patients receiving hemodialysis at two dialysis units in Regina, Saskatchewan, Canada (January 2017-December 2018). After undergoing frailty assessments, patients were referred for dual-energy x-ray absorptiometry (DXA) scans and FRAX questionnaires. They were additionally sent for lumbar x-rays and contacted for a history of falls. The presence of fracture (hips, femur, pelvis, knee, foot, leg, toe, shoulder, elbow, ankle, arm, wrist, spine, and lumbar) was documented based on the review of medical charts, self-recall, and additionally, vertebral fractures were identified by an x-ray. Bone mineral density (BMD) was measured by DXA. FRAX score (the 10-year probability of hip and major osteoporotic fracture) was calculated using an online algorithm based on 11 clinical risk factors with and without the inclusion of BMD. Frailty was assessed using the Fried criteria. Patients were enquired about the history and frequency of falls. Association between the BMD-T score, FRAX score, frailty status, falls, with fracture were examined with sequential multi-variable logistic regression models. The area under the receiver operating characteristic curve (AUC) analysis was conducted for each model to assess its discrimination ability for fracture outcome ($\alpha=0.05$).

Results: 109 adult hemodialysis patients were included in the data analysis. The composite of fracture occurred in 38% of patients. About 60% were identified as frail, and 29% had at least one fall in the last year. Each lower standard deviation in T score was associated with 48% higher odds of fracture (odds ratio [OR]=1.48; 95% confidence interval [CI] 1.20-1.68, $P=0.005$). With the inclusion of FRAX score for hip fracture, the OR for fracture remained significant at 1.38 (OR=1.38, 95% CI 1.04-1.63, $P=0.04$). The addition of frailty status and history of falls did not further improve the model. Model 2 (T score and FRAX) showed better discrimination ability and goodness-of-fit for fracture compared to Model 1 (T score) ($P=0.004$).

Conclusions: Our study showed both BMD measurements by DXA scans and FRAX are useful tools to assess fracture in patients receiving hemodialysis. The addition of frailty status and history of falls is not



associated with fractures in this population. The clinical, societal, and economic impact of fractures necessitates an active response from the hemodialysis programs. Results of this study should lead to prospective studies with larger sample sizes prior to DXA scans, FRAX, and falls assessment being recommended as standards of care.

No conflict of interest

POS-583

DIFFERENCES IN HEMOGLOBIN LEVELS IN GERIATRIC AND NON-GERIATRIC PATIENTS TREATING ROUTINE HEMODIALYSIS IN DR. RAMELAN NAVAL CENTRAL HOSPITAL SURABAYA

SETYAWAN, Y^{*1}

¹Medical Faculty of Ciputra University, Internal Medicine, Surabaya, Indonesia

Introduction: Chronic Kidney Disease (CKD) is a public health problem worldwide. One of the most common complications in CKD patients is anemia. The presence of anemia contributes to an increase in cardiovascular risk, the need for hospitalization, length of treatment and a decrease in the quality of life of patients, especially the elderly.

Methods: Analytical descriptive research was conducted on 89 CKD patients who underwent routine hemodialysis at Dr. Ramelan Naval Central Hospital, Surabaya. Data obtained from medical records. Descriptive analysis was performed by calculating the mean and standard deviation, and determining the difference in hemoglobin levels between geriatric and non-geriatric patients.

Results: The average hemoglobin level (g/dL) of geriatric patients was 8.79 ± 1.42 . The average hemoglobin level (g/dL) of non-geriatric patients was 8.95 ± 1.56 . There was no significant difference between hemoglobin levels in geriatric and non-geriatric patients ($p=0.67$).

Conclusions: There was no significant difference between hemoglobin levels in geriatric and non-geriatric patients.

No conflict of interest

POS-584

DIAGNOSTIC VALUE OF HEMOGLOBIN LEVELS IN DETECTING MORTALITY IN CHRONIC KIDNEY DISEASE PATIENTS UNDERGOING HEMODIALYSIS AT DR. RAMELAN NAVAL CENTRAL HOSPITAL SURABAYA

SETYAWAN, Y^{*1}

¹Medical Faculty of Ciputra University, Internal Medicine, Surabaya, Indonesia

Introduction: Chronic Kidney Disease (CKD) is a public health problem worldwide. One of the most common complications in CKD patients is anemia. The presence of anemia contributes to an increase in cardiovascular risk, the need for hospitalization, length of treatment and a decrease in the patient's quality of life.

Methods: A cross-sectional study was conducted on 105 CKD patients undergoing hemodialysis at Dr. Ramelan Naval Central Hospital, Surabaya.

Results: The AUC values of hemoglobin were 61.8% (95% CI 32.9%-90.7%, $p=0.43$), with cut-off values of 8.55 g/dL (60% sensitivity, 75% specificity).

Conclusions: Hemoglobin has poor sensitivity and specificity in predicting the incidence of mortality in CKD patients undergoing hemodialysis.

No conflict of interest

POS-585

DIAGNOSTIC VALUE OF PHOSPHATE CALCIUM PRODUCT IN DETECTING MORTALITY IN CHRONIC KIDNEY DISEASE PATIENTS UNDERGOING HEMODIALYSIS AT DR. RAMELAN NAVAL CENTRAL HOSPITAL SURABAYA

SETYAWAN, Y^{*1}

¹Medical Faculty of Ciputra University, Internal Medicine, Surabaya, Indonesia



Introduction: Hyperphosphatemia is an important problem in hemodialysis patients because high levels of serum phosphate and calcium phosphate products (Ca x P) are associated with increased vascular calcification and cardiovascular mortality

Methods: A cross-sectional study was conducted on 105 CKD patients undergoing hemodialysis at Dr. Ramelan Naval Central Hospital, Surabaya. The product of calcium phosphate is the product of multiplying the levels of phosphate and calcium in the blood.

Results: The AUC values of phosphate calcium product were 81% (95% CI 60.2%-100%, $p=0.04$), with cut-off values of $40.14 \text{ mg}^2/\text{dL}^2$ (sensitivity 79.7%, specificity 75%).

Conclusions: Phosphate calcium product has good sensitivity and specificity in detecting mortality in CKD patients undergoing hemodialysis.

No conflict of interest

POS-586

RELATIONSHIP BETWEEN DURATION OF ROUTINE HEMODIALYSIS AND INTERDIALYTIC WEIGHT GAIN IN CHRONIC KIDNEY DISEASE PATIENTS IN DR. RAMELAN NAVAL CENTRAL HOSPITAL SURABAYA



SETYAWAN, Y*¹

¹Medical Faculty of Ciputra University, Internal Medicine, Surabaya, Indonesia

Introduction: Chronic Kidney Disease (CKD) is a public health problem worldwide. Excessive interdialytic weight gain (IDWG) is usually related to an overload of sodium and water. Higher IDWG is associated with higher predialysis blood pressure and increased mortality. The purpose of this study was to determine whether there is a relationship between duration of routine hemodialysis and interdialytic weight gain in patients with CKD.

Methods: Analytical descriptive research was conducted on 89 CKD patients who underwent routine hemodialysis at Dr. Ramelan Naval Central Hospital, Surabaya. Data obtained from medical records. Descriptive analysis was performed by calculating the mean and standard deviation, and determining the relationship between the duration of routine hemodialysis and IDWG in patients with CKD.

Results: The average length of time undergoing routine hemodialysis (days) of patients was 1582.59 ± 4380.58 . The mean IDWG (kg) of patients was 2.07 ± 1.42 . There is a relationship between the duration of routine hemodialysis and IDWG in patients with CKD ($p=0.01$, $r=0.26$).

Conclusions: There is a significant relationship with weak correlation strength between duration of routine hemodialysis and IDWG in patients with chronic kidney disease.

No conflict of interest

POS-587

RELATIONSHIP BETWEEN DURATION OF ROUTINE HEMODIALYSIS WITH CALCIUM PHOSPHATE PRODUCTS IN CHRONIC KIDNEY DISEASE PATIENTS IN DR. RAMELAN NAVAL CENTRAL HOSPITAL SURABAYA



SETYAWAN, Y*¹

¹Medical Faculty of Ciputra University, Internal Medicine, Surabaya, Indonesia

Introduction: Chronic Kidney Disease (CKD) is a public health problem worldwide. Hyperphosphatemia is an important problem in hemodialysis patients because high levels of serum phosphate and calcium phosphate products (Ca x P) are associated with increased vascular calcification and cardiovascular mortality. The purpose of this study was to determine whether there was a relationship between duration of routine hemodialysis and calcium phosphate products in patients with CKD.

Methods: Analytical descriptive research was conducted on 77 CKD patients who underwent routine hemodialysis at Dr. Ramelan Naval Central Hospital, Surabaya. Data obtained from medical records. Descriptive analysis was performed by calculating the mean and standard deviation, as well as determining the relationship between the duration of routine hemodialysis and calcium phosphate products in patients with CKD.

Results: The average length of time undergoing routine hemodialysis (days) of patients was 1582.59 ± 4380.58 . The patient's mean calcium

phosphate product (mg^2/dL^2) was 61.29 ± 25.53 . There was a relationship between duration of routine hemodialysis and calcium phosphate products in patients with CKD ($p=0.01$, $r=0.29$).

Conclusions: There is a significant relationship with weak correlation strength between duration of routine hemodialysis and calcium phosphate products in patients with chronic kidney disease.

No conflict of interest

POS-588

RELATIONSHIP BETWEEN DURATION OF ROUTINE HEMODIALYSIS WITH HEMOGLOBIN LEVELS IN CHRONIC KIDNEY DISEASE PATIENTS IN DR. RAMELAN NAVAL CENTRAL HOSPITAL SURABAYA



SETYAWAN, Y*¹

¹Medical Faculty of Ciputra University, Internal Medicine, Surabaya, Indonesia

Introduction: Chronic Kidney Disease (CKD) is a public health problem worldwide. One of the most common complications in CKD patients is anemia. The presence of anemia contributes to an increase in cardiovascular risk, the need for hospitalization, length of treatment and a decrease in the patient's quality of life. The purpose of this study was to determine whether there was a relationship between duration of routine hemodialysis and hemoglobin levels in patients with CKD.

Methods: Analytical descriptive research was conducted on 82 CKD patients undergoing routine hemodialysis at Dr. Ramelan Naval Central Hospital, Surabaya. Data obtained from medical records. Descriptive analysis was performed by calculating the mean and standard deviation, and determining the relationship between the duration of routine hemodialysis and hemoglobin levels in patients with CKD.

Results: The average length of time undergoing routine hemodialysis (days) of patients was 1582.59 ± 4380.58 . The patient's mean hemoglobin level (g/dL) was 8.91 ± 1.52 . There is a relationship between the duration of routine hemodialysis and hemoglobin levels in patients with CKD ($p=0.00$, $r=0.4$).

Conclusions: The average length of time undergoing routine hemodialysis (days) of patients was 1582.59 ± 4380.58 . The patient's mean hemoglobin level (g/dL) was 8.91 ± 1.52 . There is a relationship between the duration of routine hemodialysis and hemoglobin levels in patients with CKD ($p=0.00$, $r=0.4$).

No conflict of interest

POS-589

RELATIONSHIP BETWEEN HEMOGLOBIN LEVELS AND UREA REDUCTION RATIO IN GERIATRIC PATIENTS TAKING ROUTINE HEMODIALYSIS IN DR. RAMELAN NAVAL CENTRAL HOSPITAL SURABAYA



SETYAWAN, Y*¹

¹Medical Faculty of Ciputra University, Internal Medicine, Surabaya, Indonesia

Introduction: Chronic Kidney Disease (CKD) is a public health problem worldwide. One of the most common complications in CKD patients is anemia. The presence of anemia contributes to an increase in cardiovascular risk, the need for hospitalization, length of treatment and a decrease in the quality of life of patients, especially the elderly.

Methods: Analytical descriptive research was conducted on 21 CKD patients who underwent routine hemodialysis at Dr. Ramelan Naval Central Hospital, Surabaya. Data obtained from medical records. Descriptive analysis was performed by calculating the mean and standard deviation, and determining the relationship between hemoglobin levels and urea reduction ratio (URR) in geriatric patients.

Results: The average hemoglobin level (g/dL) of geriatric patients was 8.79 ± 1.42 . The mean URR of geriatric patients was 56.97 ± 13.46 . There was no relationship between hemoglobin levels and URR in geriatric patients ($p=0.21$, $r=0.29$).

Conclusions: The average hemoglobin level (g/dL) of geriatric patients was 8.79 ± 1.42 . The mean URR of geriatric patients was 56.97 ± 13.46 . There was no relationship between hemoglobin levels and URR in geriatric patients ($p=0.21$, $r=0.29$).

No conflict of interest

POS-590

RELATIONSHIP BETWEEN CALCIUM PHOSPHATE PRODUCTS AND UREA REDUCTION RATIO IN PATIENTS TAKING ROUTINE HEMODIALYSIS IN DR. RAMELAN NAVAL CENTRAL HOSPITAL SURABAYA

SETYAWAN, Y*¹¹Medical Faculty of Ciputra University, Internal Medicine, Surabaya, Indonesia

Introduction: Hyperphosphatemia is an important problem in hemodialysis patients because high levels of serum phosphate and calcium phosphate products (Ca x P) are associated with increased vascular calcification and cardiovascular mortality. The purpose of this study was to determine whether there is a relationship between calcium phosphate products and urea reduction ratio (URR) in patients undergoing routine hemodialysis.

Methods: Analytical descriptive research was conducted on 69 chronic kidney disease patients who underwent routine hemodialysis at Dr. Ramelan Naval Central Hospital, Surabaya. Data obtained from medical records. Descriptive analysis was performed by calculating the mean and standard deviation, and determining the relationship between calcium phosphate products and URR.

Results: The patient's mean calcium phosphate product (mg^2/dL^2) was 61.29 ± 25.53 . The patient's mean URR was 60.34 ± 12.61 . There was no relationship between calcium phosphate products and URR in patients undergoing routine hemodialysis ($p=0.63$, $r=0.06$).

Conclusions: There was no relationship between calcium phosphate products and URR of patients undergoing routine hemodialysis.

No conflict of interest



POS-591

RELATIONSHIP BETWEEN INTERDIALYTIC WEIGHT GAIN WITH MORTALITY IN PATIENTS THAT WAS ROUTINED HEMODIALYSIS IN DR. RAMELAN NAVAL CENTRAL HOSPITAL SURABAYA

SETYAWAN, Y*¹¹Medical Faculty of Ciputra University, Internal Medicine, Surabaya, Indonesia

Introduction: Chronic Kidney Disease (CKD) is a public health problem worldwide. Excessive interdialytic weight gain (IDWG) is usually related to an overload of sodium and water. Higher IDWG is associated with higher predialysis blood pressure and increased mortality.

Methods: Analytical descriptive research was conducted on 99 CKD patients undergoing routine hemodialysis at Dr. Ramelan Naval Central Hospital, Surabaya. Data obtained from medical records. Descriptive analysis was performed by calculating the mean and standard deviation, and determining the relationship between IDWG and mortality in patients undergoing routine hemodialysis.

Results: The mean IDWG (kg) of patients was 2.07 ± 1.42 . The incidence of patient deaths was nine patients. There was no relationship between IDWG and mortality in patients undergoing routine hemodialysis ($p=0.70$; $r=-0.04$).

Conclusions: There is no relationship between IDWG and mortality in patients undergoing routine hemodialysis.

No conflict of interest



POS-592

COMPARATIVE ANALYSIS OF THE CAUSES OF DEATH IN DIALYSIS PATIENTS WITH AND WITHOUT CARDIOVASCULAR DISEASES

SHARAPOV, O*^{1,2}, Daminov, B², Abdullaev, S²¹Republican Specialized Scientific Practical Medical Center of Nephrology and Kidney transplantation, Pediatric and Adult Nephrology, Tashkent, Uzbekistan, ²Tashkent Pediatric Medical Institute, Internal diseases, Tashkent, Uzbekistan

Introduction: According to recently published WHO data, kidney disease has been the 10th leading cause of death in the world over the past 20 years. The mortality rate of patients on hemodialysis is 6.3-8.2 times higher than in the general population. The presence of cardiovascular comorbidity worsens the prognosis and survival in this



category of patients. The lethality of dialysis patients with cardiovascular pathology is 3 times higher than that of patients without cardiovascular diseases (CVD). This is especially pronounced in developing countries. The aim of our study was to study the effect of comorbidity of the CVD on survival in patients with end-stage CKD receiving programmed hemodialysis among the population of Uzbekistan.

Methods: The study involved 200 (109 men and 91 women) patients with CKD stage 5 who were on programmed hemodialysis. The average age of the surveyed was 48.1 ± 14.2 years. The study included patients with a clinically established diagnosis of stage 5 CKD in the outcome of nephropathies of various origins. GFR was calculated based on serum creatinine concentration using the CKD-Epi formula. The main initial diseases: chronic glomerulonephritis ($n = 92$), diabetes mellitus - diabetes mellitus ($n = 53$), urolithiasis ($n = 17$), chronic pyelonephritis ($n = 12$), etc. All patients were prospectively followed in 3 different centers of Uzbekistan for 24 months (from January 2018 to January 2020). During this period, 72 patients died (40 men and 32 women). The average age of the deceased was 53.6 ± 1.6 years. To identify the cause of death, the medical history and the results of the pathological examination were analyzed.

Results: Among the deceased, 68.1% ($n=49$) of patients had CVD, while 31.9% ($n=23$) did not have CVD. 43.1% ($n=31$) of patients died during the first year of follow-up, the remaining 56.9% ($n=41$) died within 2 years. The main cause of death of all patients is shown on figure 1. When analyzing the structure of death, depending on the presence of CVD, in patients with CVD, sudden cardiac death was 63% ($n=30$) of all causes of death, while in patients without CVD, it was 59% ($n=14$). Acute respiratory failure as a cause of death was detected more in patients without CVD. 29% ($n=7$) of patients died from this complication, while in patients with CVD this indicator was 13% ($n=6$). All cases of acute myocardial infarction ($n=5$) were observed in patients with CVD (10%). Deaths due to stroke and coma were also more common in patients with CVD (figure 2).

Conclusions: As our analysis shows, in Uzbekistan the primary diseases in dialysis patients are glomerulonephritis (46%) and diabetes mellitus (26.5%). Dialysis patients in our country mainly die due to cardiovascular pathologies (more than 80%). The main place in the structure of death is taken by sudden cardiac death, which is the cause of death for more than 60% of deceased patients. Other causes were acute respiratory failure, acute myocardial infarction, coma, stroke, and acute bleeding. The analysis of mortality showed that 68.1% of the patients who died had concomitant CVD, which is 2 times more than among those who died without concomitant CVD (31.9%).

No conflict of interest

POS-593

STUDY OF 2 YEAR OUTCOMES OF HUB AND SPOKE MODEL OF DIALYSIS

SOUNDARYA, K*¹, Manjusha, Y²¹Gandhi hospital, Nephrology, Secunderabad-Telangana, India, ²Gandhi hospital, Nephrology, Secunderabad, India

Introduction: ESRD is a major health problem worldwide particularly in developing countries. The economic, human, technical resources required for long term dialysis makes it a major economic and political challenge. Most countries do not have well formed policies for providing renal care. Dialysis facilities are grossly inadequate and pose a huge economic burden in resource poor countries. Dialysis programs should be decentralized and all the available resources should be used at its maximum. Hub and Spoke model is an innovative model of dialysis to cater the needs of dialysis and providing adequate renal care to patients. This study highlights the important features of this model.

Methods: Study design is Retrospective. A Hub center is a government medical college/ institution with full-fledged department of nephrology with faculty and postgraduates. A Spoke center is a district hospital /area hospital where a specialist such as internal medicine physician or an Anaesthetist would be in-charge of dialysis unit. Working of spoke centers is monitoring by Hub team through tele surveillance and monthly visits. Data from all patients undergoing dialysis from January 2019 to December 2020 in tertiary care hospital hub and spoke centers were collected. Functioning of 11 spoke centers and epidemiological data, outcomes were analyzed.

AIM- To study the Hub and Spoke model of dialysis and to study the two year outcomes of patients undergoing hemodialysis in a tertiary center cluster.

Results: Table1: Details of HUB and SPOKE centers

