A median weekly dose of etelcalcetide was 15 mg (7.5–22.5 mg) and did not differ between naïve patients or switched from cinacalcet.

After the switch of treatment, none of the patients developed clinical intolerance or new adverse effects. Etelcalcetide was more effective than cinacalcet in controlling secondary hyperparathyroidism. The dose conversion factor for the switch was [etelcalcetide/week] = 0.277×[mg cinacalcet/day], indicating that single dose of etelcalcetide (2.5 mg per session) is functionally slightly less than single dose of cinacalcet (30 mg per day).

Conclusions: These results indicate that the signs of assumed autonomous parathyroid glands adenoma could predict therapeutic response of etelcalcetide better than PTH level.

SAT-245

RELATIONSHIP BETWEEN NEUTROPHIL-TO-LYMPHOCYTE RATIO AND PLATELET-TO-LYMPHOCYTE RATIO WITH ERYTHROPOIETIN RESISTANCE IN HEMODIALYSIS PATIENTS

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Introduction: Erythropoiesis stimulating agents (ESA) have become a standard treatment of anemia in end stage renal disease. One of the most common factors contributing to resistance to ESA therapy is inflammation. Neutrophil to lymphocyte ratio (NLR) and platelet to lymphocyte ratio (PLR) have recently been identified as new markers of inflammation in end stage renal disease, however their association with ESA therapy has not been investigated. We aimed to determine the relationship between PLR, NLR and ESA responsiveness.

Methods: We performed a cross sectional study including 90 patients on maintenance hemodialysis undergoing ESA therapy at the Department of Nephrology and clinical immunology, Clinical Center of Vojvodina in Novi Sad Serbia. Data on patient demographics, dry weight, body mass index, duration of HD (months), complete blood count, biochemistry, NLR, and PLR were recorded in all patients. ESA hyporesponsiveness index (EHRI) was calculated as the weekly dose of erythropoietin divided by kilograms of body weight divided by the hemoglobin level

Results: Hemoglobin levels were strongly negatively correlated with logarithmically converted EHRI (logEHRI) (r=-0.50, p ≤0,00), whereas both NLR and PLR were positively correlated with logEHRI (r=0.30 p≤0,00, and r=0.36 p≤0.00). Comparison of NLR and PLR among 25th, 50th and 75th percentile of EHRI revealed a strong positive correlation in all three groups. Posthoc analysis showed that there is a difference between NLR and 25th and 50th percentile (p=0,00) as well as between 25 and 75th percentile (p=0,00) while there was no difference between the 50th and 75th percentile. When it comes to TLR there was a statistical difference in all percentile groups (p=0,00). A slightly stronger correlation was identified between PLR and logEHRI compared to NLR and logEHRI

Conclusions: NLR and PLR present simple and universally accessible methods and bear a great potential to be clinically used as new prognostic markers of erythropoietin therapy response

SAT-246

THE EFFECT OF DENOSUMAB ON OSTEOPOROSIS IN PATIENTS WITH HEMODIALYSIS

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Introduction: The incidence of fractures is much higher in patients with chronic kidney disease(s), especially hemodialysis, than people without CKD. Although osteoporosis is an important risk factor for a fracture, it is unclear what optimal treatment for osteoporosis in patients with hemodialysis is (can be). Recent KDIOG guideline recommends evaluation of osteoporosis using (a) bone densitometry to predict incident fractures in patients with CKD. We determined the effectiveness of denosumab, which is a RANKL inhibitor to prevent the development of osteoclast, based on combined results of a bone densitometry and biomarkers in patients with hemodialysis.

Methods: A bone densitometry, dual-energy x-ray absorptiometry, was performed in 78 hemodialysis patients. Thirty-four patients had osteoporosis, defined as T-score less than -2.5. Nine patients were excluded for denosumab treatment due to the possibility of low turnover (N=3), poor oral hygiene (N=2), poor general condition (N=2), and refusal of treatment (N=2). Twenty-five patients (10 male, 15 female, 70.0±10.3 years old) who consented denosumab treatment were enrolled. They had following underlying disorders: 11 diabetes, 8 hypertension, 4 glomerulonephritis, 1 lupus, and 2 of unknown origin. Mean duration of maintenance hemodialysis was 69.1±45.2 months, mean Kt/V was 1.8±0.3.

Results: The level of C-terminal telopeptide, a bone resorption marker, was significantly decreased from 2.17±1.03 to 1.39±0.86 (P=0.01) 6 months after denosumab treatment. The level of bone specific alkaline phosphatase, a bone formation marker, was also significantly decreased from 58.6±27.1 to 31.3±11.2 (P<0.001) after the treatment, However, the level of osteocalcin did not show big difference.

The level of area BMD and T-score of total hip bone were increased by 2.95% and 3.7% a year after the treatment, respectively. Those of femur neck tended to increase from 0.464±0.05 to 0.502±0.07 (P=0.10) and -3.14 ±0.54 to -2.83±0.65 (P=0.11). However, there were no changes in lumbar spines.

Three patients showed numbness related to hypocalcemia. Two patients suffered from sustained hypocalcemia for 2 months after the treatment. In order to prevent such symptoms after the treatment, active prevention with calcium and calcitriol were applied to all patients who were given denosumab treatment.

Conclusions: In conclusion, denosumab could improve bone density in hemodialysis patients. Active prevention could eliminate hypocalcemia-related symptoms.

SAT-247

RISK FACTORS OF INSOMNIA IN CHRONIC HEMODIALYSIS PATIENT IN MOHAMMAD HOESIN HOSPITAL PALEMBANG INDONESIA

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Introduction: Insomnia is the inability to fall asleep or stay asleep and wake up earlier characterized by poor sleep quality and could cause poor quality of life. A recent survey has shown that insomnia is still a very common problem in maintenance hemodialysis patients. There are many factors involved in insomnia. This research aimed to identify and analyze factors that may affect insomnia on chronic hemodialysis patients in Mohammad Hoesin Hospital Palembang.

Methods: This research used analytic observational method with cross-sectional approach. The sample of the research was chronic hemodialysis patients in Mohammad Hoesin Hospital Palembang within period of November-December 2018 that fulfilled the inclusive criteria. Data were analyzed using univariate analysis and presented as frequency distribution table. Data were also analyzed using bivariate and multivariate analysis to gain the understanding of involving factors. This study involved 71 chronic hemodialysis patients that meets the inclusion criteria, 62 (87.3%) of them experienced insomnia.

Results: The bivariate analysis showed significant results between chronic pain, hemodialysis schedule and stress (p = 0,000; p = 0,013; p = 0,007. Based on multivariate analysis showed that chronic pain (p = 0.017) had a significant effect on the occurrence of insomnia (p <0.05), while stress (p = 0.239), hemodialysis schedule (p <0.217).

Conclusions: The hemodialysis schedule has a significant relationship with the occurrence of insomnia and morning hemodialysis schedule, Chronic pain, and stress are risk factor for the occurrence of insomnia on chronic hemodialysis patients

SAT-248

MAINTAINING A BALANCED BONE HEALTH BY OPTIMUM MANAGEMENT OF RENAL OSTEODYSTROPHY IN THE HEMODIALYSIS POPULATION

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Introduction: Renal Osteodystrophy (ROD) form an important and generally unrecognised problem in the dialysis population. The impact of this

disorder on fracture risk and vascular calcification has been well documented. However this aspect of their medical care often gets overlooked despite the availability of powerful diagnostic and therapeutic interventions

AIM: To evaluate the prevalence of Renal Osteodystrophy in the hemodialysis population and the effects of specific therapeutic interventions, both medical and surgical. and their outcomes.

Methods: This was a retrospective, cross sectional study of patients at a single haemodialysis centre. Patients were divided into two groups based upon their iPTH levels - iPTH <100pg/dl and >1000pg/dl representing low turnover & high turnover bone disease respectively. Patient with low turnover bone disease were treated with either low calcium bath, or Injection Teriparatide or both and stopping there calcium and active vitamin D supplement. Bone mineral density (BMD) was evaluated with a densitometry scan (DEXA) done pre treatment and after 6 months to see the effect of treatment with Teriparatide. Patients with high turnover bone disease were treated with Cinacalcet, Injection Vitamin D3 or both. Parathyroid surgery was done in patients who were refractory to medical treatment for 3 months

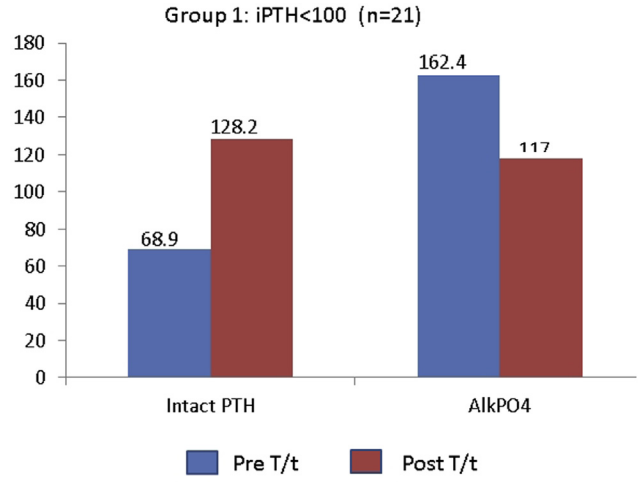
Results: A total of 152 patients were evaluated. 21 patients had iPTH <100pg/ml (13.8%). 31 patients had iPTH >1000 (20.4%). The extremes of the CKD ROD spectrum afflicted 34% patients.

For the low PTH group, the mean values for iCa, PO4, iPTH and ALP pretreatment were 1.22±0.062, 4.88±2.058, 68.9±33.18, 162.4±72.74 respectively. The posttreatment values were 1.15±0.09 (p=0.12), 4.83±1.93(p=0.95), 128.22±85.17(p<0.0001) & 117.75±48.61(p=0.031) respectively.

Out of 31 patients with iPTH>1000, 6 were on vitamin D, 1 patient was on Cinacalcet only and 16 were on combination therapy. 4 underwent parathyroidectomy.

Mean pretreatment value of iCa, PO4, iPTH & ALP in the medically treated group were 1.1±0.11, 5.48±0.83, 1327.023± 169.58 and 159.76±62.76 respectively. The values after treatment were 1.15 ± 0.23, 5.8± 0.89, 469.66 ± 366.9(p<0.0001) and 131.22±44.47(p=0.10) respectively.

Out of 4 patients who underwent surgery, mean value of iPTH pre & post surgery 1384±433.97 & 666.25±308.73.



Conclusions: Significant Renal Osteodystrophy exists in a third of the dialysis patients.

Medical management is successful in the majority of patients. A small proportion are successfully treated with parathyroidectomy. Timely monitoring parameters of CKD ROD is essential to mitigate the morbidity of this condition.

SAT-249

CLINICALLY RULING IN ACUTE CORONARY SYNDROMES IN END-STAGE RENAL DISEASE PATIENTS ON HAEMODIALYSIS IN A LIMITED RESOURCE SETTING

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Introduction: Kidney Foundation, Bangladesh is a not-for-profit organisation that caters mainly to the needs of the lower income group of renal patients in this low to middle income nation, where the health expenditure is predominantly out of pocket. Due to financial constraints, many patients cannot afford regular dialysis, let alone cover the costs of investigations that may be required as a course of treatment. In patients with End-stage Renal Disease (ESRD) the risk of Acute Coronary Syndrome (ACS) is high; add to this the established atypical presentation of ACS in the South Asian patient and the chance of missing an evolving myocardial infarction is high. The concern of treating ACS in this group of patient also exists as anticoagulation increases the risk of bleeding. To limit the use of serum Troponin in these patients, we look at the effectivity of using clinical judgment in ruling in ACS.

Methods: A retrospective cohort study was conducted over the period of two months on patients who were admitted to Kidney Foundation requiring haemodialysis. Patients were selected based on requiring a serum Troponin either for worrying clinical features on presentation, or due to ECG changes consistent with ACS. High sensitivity Troponin I was used and calculated in pg/ml. ACS patients requiring treatment were identified after being reviewed by a cardiologist with access to ECGs, Troponin values and echocardiography. Patients were then grouped against the troponin result by clinical features, ECG changes and a combination of the two, and then compared (Table 1).

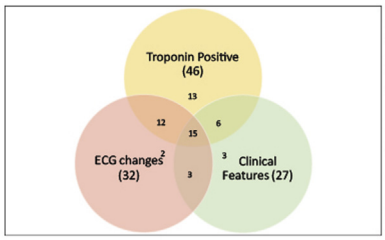

Figure1: Venn diagram showing relationship between positive Troponin results, ECG changes and clinical features

(a)	Trop +ve	Trop -ve	
ECG & features +ve	15	3	18
ECG & features -ve	31	11	42
	46	14	60
(b)	Trop +ve	Trop -ve	
ECG +ve	28	4	32
ECG -ve	18	10	28
	46	14	60
(c)	Trop +ve	Trop -ve	
Features +ve	21	6	27
Features -ve	25	8	33
	46	14	60

Table 1: 2x2 charts for (a) ECG and positive features, (b) only ECGs and (c) only clinical features against troponin results

78.57%		Value	95% CI		Value	95% CI		Value	95% CI
Sensitivity	ECG and Clinical Features	32.61%	19.53% to 48.02%	Only ECG	60.87%	45.37% to 74.91%	Only Clinical Features	45.65%	30.90% to 60.99%
Specificity		78.57%	49.20% to 95.34%		71.43%	41.90% to 91.61%		57.14%	28.86% to 82.34%
Positive Likelihood Ratio		1.52	0.51 to 4.51		2.13	0.90 to 5.03		1.07	0.54 to 2.11
Negative Likelihood Ratio		0.86	0.61 to 1.20		0.55	0.34 to 0.89		0.95	0.56 to 1.61
Disease Prevalence		76.67%	63.96% to 86.62%		76.67%	63.96% to 86.62%		76.76%	63.96% to 86.62%
Positive Predictive Value		83.33%	62.80% to 93.67%		87.50%	74.76% to 94.93%		77.78%	63.89% to 87.38%
Negative Predictive Value		26.19%	20.17% to 33.26%		35.71%	25.54% to 47.55%		24.24%	15.91% to 35.11%
Accuracy		43.33%	30.59% to 56.76%		63.33%	49.90% to 75.41%		48.33%	35.23 to 61.61%

Table 2: Statistical breakdown of 2x2 charts showing values and confidence intervals

tables and figures.

Results: Although a clear overlap between Troponin positive ACS and the criteria of clinical features and ECG changes exist (Figure 1), there is also a degree of independence.84% of patients with ECG changes had positive troponins as compared to 78% of patients with positive clinical features. 2 by 2 comparison tables of clinical suspicion, ECG changes and a combination of the two were tested for specificity and positive predictive values among other statistics (Table 2). A combination of ECG changes and clinical features was more specific (78.57%) than individual criteria, but ECGs alone had a better positive predictive value (87.5%).

Conclusions: A combination of clinical gestalt and ECG changes can be used effectively to rule in ACS and potentially remove the need of performing expensive Troponin tests on patients prior to commencing treatment. It is more than likely that specificity will improve by training physicians to take a focused cardiac history and interpret the more subtle changes in the ECG when managing the End-stage renal disease patient on haemodialysis.

SAT-250

FAR INFRARED THERAPY: EFFECTS ON VASCULAR ACCESS BLOOD FLOW, KT/V AND NEEDLING PAIN IN HEMODIALYSIS PATIENTS

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Introduction: Well-Functioning vascular access is necessary for achieving adequate and high-quality dialysis. Other than that, minimal