overweight had the nadir P level at the fifth day post-PTx (4.6 mg/dl), the normal weight at the second day (3.4 mg/dl).
In conclusion, a higher BMI is associated with a more precocious and a more aggressive histological pattern of sHPH: this may be due to a different multi-compartmental kinetics of P, possibly due to a larger P body burden.

## W-PO40098

## MANAGEMENT OF RENAL BONE DISEASE IN ACCORDANCE TO K/DOQI GUIDELINE-A SINGLE CENTER EXPERIENCE

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Standard of care for renal bone disease in Department of Nephrology, Hospital Kuala Lumpur (HKL) is similar to other government heamodialysis centers (unpublished data). However, there is lack of such information in Ministry of Health heamodialyisis unit with respect to K/DOQI guideline.
**Objectives:** To study standard of care of renal bone disease with respect to K/DOQI guideline regarding corrected serum calcium ($Ca^{2+}$), serum phosphate ($PO_4^{3-}$), intact plasma parathyroid hormone (iPTH) and elementary calcium supplement from phosphate binders per day in year 2003 & 2004.
**Design & Methods:** 1. A cross sectional study was performed and involving patients receiving haemodialysis at HKL for more than 12 months duration in December 2003 & 2004 respectively. Demographic data, latest $Ca^{2+}$/$PO_4^{3-}$/iPTH level and calcium carbonate dosage per day were collected from clinical records. 2. Patients who had parathyroidectomy were excluded.
**Results:** A cohort of 105 patients was identified for the study in December 2003 & 2004. Majority is male gender, 66.7%. The duration of dialysis prior to study period was 104 ± 73 (28–303) months in December 2004. The iPTH/Ca/PO4/Elementary Ca results are summarized as below:

| | 2003 (%) | 2004 (%) |
|---|---|---|
| iPTH 150–300 pg/dl | 15.2 | 17.2 |
| >300 pg/dl | 54.3 | 55.2 |
| <150 pg/dl | 30.5 | 27.6 |
| Ca 2.10–2.37 mmol/l | 32.4 | 30.5 |
| 2.38–2.53 mmol/l | 23.8 | 35.2 |
| >2.54 mmol/l | 34.3 | 27.6 |
| <2.10 mmol/l | 9.5 | 6.7 |
| PO4 1.13–1.78 mmol/l | 45.7 | 52.4 |
| >1.78 mmol/l | 43.8 | 36.2 |
| <1.13 mmol/l | 10.5 | 11.4 |
| Elementary Ca <1.5 g/day | 67.6 | 80 |
| >1.5 g/day | 32.4 | 20 |

**Conclusions:** Management of renal bone disease in HKL is still suboptimal and is similar to as reported in certain Europe center. Hyperphosphataemia and hypercalcaemia remain an issue in management of chronic dialysis population. However, it has improved since the introduction of K/DOQI guideline. Currently with the introduction of noncalcium phosphate binder and calcimimetic agents, there will be expected less incidence of hypercalcaemia and hyperphophataemia with better control of renal bone disease in future.

## W-PO40099

## FORECASTING TARGET RANGE OF INTACT PARATHYROID HORMONE IN HEMODIALYSIS PATIENTS: COMPARISON BETWEEN ARTIFICIAL NEURAL NETWORK AND NAIVE BAYES CLASSIFIER

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**Objective:** Measuring plasma intact parathyroid hormone (iPTH) concentration is crucial for managing renal osteodystrophy in hemodialysis (HD) patients. Although frequent measurements of plasma iPTH concentration are necessary to avoid inadequate prescription of vitamin D analogues, it is not cost-effective in most of the hospitals. For this purpose, we constructed and compared the performance of an artificial neural network (ANN) and a naive Bayes classifier (NBC) in forecasting target range of plasma iPTH concentration for HD patients.
**Methods:** The study population consisted of 130 HD patients (62 male and 68 female, age 59.72 ± 14.04 years). The predictors included demographic characteristics (gender, age), associated diseases (diabetes, hypertension), blood biochemistries (hemoglobin, protein, albumin, calcium, inorganic phosphorus, alkaline phosphatase, and ferritin), calcium-phosphorus product, and transferrin saturation. The outcome variable was dichotomous, either target group (150 pg/ml ≦ iPTH ≦ 300 pg/ml) or non-target group (iPTH < 150 pg/ml and iPTH > 300 pg/ml) based on K/DOQI guideline. A leave-one-out technique was adopted in cross-validation process. The ability of ANN and NBC to discriminate outcome was assessed using receiver-operating characteristics (ROC) curve analysis with the discriminating power determined by the area under the ROC curve (AUC).
**Results:** The final best ANN model used in this study was a feed-forward, multilayer perceptron network architecture using back-propagation algorithm. Pairwise comparison of each ROC curve showed that the ANN significantly outperformed the NBC (AUC = 0.899 ± 0.058 vs. 0.623 ± 0.076, p = 0.003).
**Conclusion:** ANN can accurately forecast target range of plasma iPTH concentration in HD patients and might be a useful tool to stratify the patients into target group.

## W-PO40100

## PTH-FRAGMENTS – CAP AND CIP AND BONE FORMATION MARKERS IN CHILDREN WITH RENAL FAILURE.

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Commercial intact PTH assays detect two immunoreactive fragments – whole PTH molecule (1–84 aminoacids PTH) and 7–84 PTH, which are biologically different. 1–84 PTH (cyclase activating PTH, CAP) increases, 7–84 PTH (cyclase inactive PTH, CIP) decreases bone turnover. The aim of the study was to estimate the effect of PTH and its fragments on bone formation markers in children with chronic renal failure (CRF). We examined 75 children with CRF: 41, aged 13.4 ± 4.3 on conservative treatment and 34 with end-stage renal disease. In all children serum level of calcium (sCa), phosphorus (sP), osteocalcin (OC), alkaline phosphatase (AP) were evaluated; intact PTH (PTHint) and CAP value were estimated with new Scantibodies laboratory immunoradiometric assay. The value of CIP, CAP/CIP ratio and percentage of CIP and CAP (%CIP and %CAP) were calculated. Correlations between examined parameters were calculated by the Spearman's correlation coefficients.
Significant correlations were found between OC and AP (R = 0.5, p < 0.001), PTHint (R = 0.6, p < 0.001), CAP (R = 0.51, p < 0.005), CIP (R = 0.6, p < 0.001) and sP (R = 0.46, p < 0.001). Significant negative correlation was found between OC and CAP/CIP (R = –0.33, p < 0.01). Significant correlation of PTHint with %CIP (R = 0.38, p < 0.001) and negative correlation with %CAP (R = –0.38, p < 0.001) were found.
**Conclusion:** The bone turnover expressed by osteocalcin level rises together with PTHint increase, despite of the increase of CIP fragment in PTH molecule. Increase of CIP fragments doesn't have negative influence on bone turnover expressed by osteocalcin level. The evaluation of significance CIP and CAP for bone formation in children with chronic renal failure require further studies.

## W-PO40101

## OSTEOPROTEGERIN (OPG) IN CHILDREN WITH CHRONIC RENAL FAILURE

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Glicoprotein, osteoprotegerin (OPG), a member of the TNF receptor superfamily is a natural inhibitor of osteoclastogenesis. OPG inhibits osteoclast activation and differentiation. OPG acts as a decoy receptor by binding the receptor activator of nuclear factor kB ligand (RANKL). The aim of the study was to estimate a concentration of OPG in children with chronic renal failure. Thirty-nine children, aged 13.6+/–4.5 years with chronic renal failure, 23 on conservative treatment (CRF), aged 13+/–3.5 years with creatinine clearance 47.6+/–20 ml/min/1.73 $m^2$ and 16 with end-stage renal disease (ESRD), aged 14.4+/–5.6 years were examined. In all children serum concentration of OPG, parathormone (PTHint), calcium (sCa), phosphorus (sP) and alkaline phosphatase (AP) were measured. OPG was determined by ELISA method (Biomedica), PTHint by RIA method, AP by kinetic method, sCa and sP were determined by standard laboratory biochemical assays. Correlations were calculated by the Spearman's correlation coefficients. As a normal concentration of OPG in children 4.05+/–1.63 pmol/l was accept (Buzi F et al. Clin Endocrinol 2004, 60:87–91).