

# A review of the QEHB Renal Endocrine Complex Bone Disease Advice Service

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## Background

Renal bone disease is becoming an evident healthcare issue as our population ages and patients survive despite co-morbidities<sup>[1]</sup>. KDIGO guidelines now recommend BMD review and bone biopsy<sup>[2]</sup>; the latter currently inaccessible in the West Midlands. Due to this, UHB set up a renal-endocrine-bone (REB) service, aimed at providing collaborative advice from both Nephrology and Endocrinology, to manage complex renal patients.

The service evaluation aims to determine the benefit of the newly established clinic. Using clinical data from patients reviewed by the REB service, we have:

- Explored the possible biomarkers for bone health
- Compared expertise opinions to that of the general Nephrologist and Endocrinologist

## Methodology

The study included 88/97 patients reviewed by the REB service. Data was extracted from online Portal and PICS as well as manual notes made by the service. Our exclusion criteria omitted:

- Patients <18 years of age
- Patients lacking NHS identifiers.
- Patients without sufficient online and physical notes regarding their medical history.

### Biomarkers

We looked for the following associations between biomarkers:

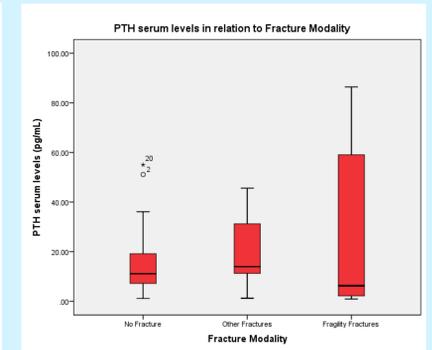
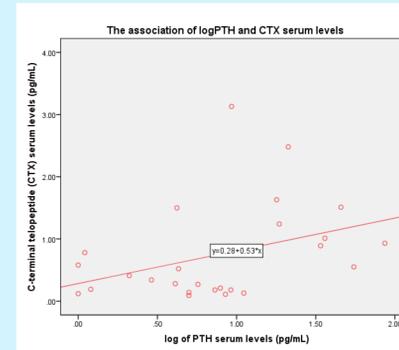
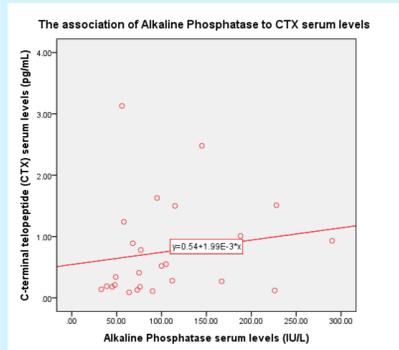
- The association of Alkaline Phosphatase (ALP) and PTH levels to bone turnover markers: P1NP, CTX.
- The association of PTH levels to fracture status.

We used Spearman's rank correlation co-efficient and Mann-Whitney Statistical Tests respectively.

### Questionnaire

Based on the patients reviewed by the REB service, a case-based questionnaire was distributed among the Nephrology and Endocrinology departments. 15 responses were then compared against the answers of the REB service. Each response was assessed and the average scores for each question were calculated, which specifically identified discrepancies in the answers between respondents and the REB service.

## Results: Association of Biomarkers



## Survey Results

**Case: A 65 year old male was diagnosed with microscopic polyangiitis (MPO ANCA positive) with necrotising glomerulonephritis 8 years previously. He has been taking Alendronic acid 70mg weekly since diagnosis and has suffered no fractures. His current blood tests and DXA results are below. What would you advise?**

**38%**  
Average participant scores with a range from 10.4%-70.8%  
**4/5**  
Overall rating for service

2018	2010	2018
Urea 12.2	Lumbar spine L1-4 T = -1.8,	Lumbar spine L1-4 T = -2.0,
Creat 160umol/L	Lumbar spine L1-4 Z = -1.2,	Lumbar spine L1-4 Z = -1.4,
eGFR 40ml/min,	Mean total hip T = -1.1,	Mean total hip T = -1.8,
PTH 25pmol/l	Mean total hip Z = -0.5,	Mean total hip Z = -1.2,
Alk Phos 160 U/L		
25 OH Vit D 24nmol/L		
Corrected Ca 2.3mmol/L		

Replace the Vitamin D  
?escalate the osteoporosis treatment

Start Alfacalcidol and take more exercise

Vitamin D and calcium

**Case: A 45 year old female was diagnosed with ANCA positive glomerulonephritis in 2010. Her vasculitis is currently quiescent and she has been maintained on only prednisolone 5mg daily for some years. She has never suffered a fracture. Her current blood tests and DXA scan results from 2012 and 2018 are below**

2018	2012	2018
Urea 12.2	Lumbar spine L1-4 T = -1.0	Lumbar spine L1-4 T = -2.2,
Creat 230umol/L	Lumbar spine L1-4 Z = -0.9,	Lumbar spine L1-4 Z = -1.9,
eGFR 20ml/min,	Mean total hip T = -1.1,	Mean total hip T = -1.8,
PTH 8pmol/l (75pg/ml)	Mean total hip Z = -1.0,	Mean total hip Z = -1.5
Alk Phos 80U/L		

Assess for potential to withdraw prednisolone

Start a bisphosphonate

Refer to REB service for consideration of Denosumab

## Discussion:

The REB Service is in its second year of running, in that time it has managed over 97 patients. Our survey results identified that clinicians had an unfamiliarity to the common medications used in CKD-MBD. The REB Service provides safe utilisation of these drugs to produce their benefits to patients. More so, many clinicians were unclear about when medication reviews and management changes were appropriate. Drug holidays and regular DEXA scans are vital for preventing Osteoporotic changes and this the REB service recognises. Improvements suggested to the service included increased frequency of meetings, for us to request all necessary tests and to provide guidelines and teaching. We also need to develop a bone biopsy service to provide better care.

