FRI0638 | **LUMBAR SPINE BONE MASS DENSITY AS A PREDICTOR OF FRACTURES IN PATIENTS WITH COELIAC DISEASE: AN OBSERVATIONAL STUDY**

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Background: Previous studies have indicated that Lumbar spine Bone Mineral Density (BMD) could be used as an indicator to predict fractures in patients with coeliac disease (1). Patients with coeliac disease are at a higher risk of developing fragility fractures as a result of the underlying metabolic pathology. Despite previously highlighting the lumber spine BMD usefulness in predicting fractures, score systems, like the FRAX score still has not acknowledged it.Additionally recent data suggested that using a ratio of Body mass index (BMI) to BMD could increase the predictive models for fracture.

Objectives: Through a large observational study, we set out to determine the various predictors of fractures in patients with coeliac disease. Age, gender and lumber BMD were some of the factors that were considered in relation to fractures. This data was scrutinised to assess specifically the lumbar BMD's ability to predict fractures with and without using the BMI ratio.

Methods: A sample of 788 patients with coeliac disease referred for bone density estimation to a scanner in the North west of England from 2004-2010 was used to assess various predictors of fractures. Data were initially analysed using simple statistical analyses (chi-squared for categorical variables and T-test for continous variables) to compare patients who had sustained a fracture to those that had not sustained a fracture.

The data was then subject to further analysis initially using univariate and then multivariate logistic regression models. Variables analysed included Lumbar spine L1-L4 BMD, BMI/BMD ratio, gender, age at scan, family history of fractures, alcohol, smoking and rheumatoid arthritis. In order to further assess the Lumber spine BMD's vs BMI/BMD in predicting fractures, the data was further adjusted for age and gender and models compared using areas under the reciever operating characteristic (ROC) curve.

Results: Out of the 788 patients referred in the analysis period, 159 (20.2%) sustained a fracture. The mean age at the time of the scan was 55.4 (SD 14.4). A total of 576 (73.1%) were female and of those 127 (22%) had sustained a fracture. Female gender was significnatly associated with fracture (p<0.003). Patients with fractures were older 59.2 years (SD14) compared to 54 years (SD 14) (p<0.001). Using the multivariate model, it was evident that even after being adjusted for age and gender, the lumber spine BMD was a good predictor of fractures (OR 0.08 95%CI 0.02,0.3). This performed better than the ratio of BMD/BMI. AUC 0.64 vs AUC 0.62.

Conclusion: The FRAX tool should consider using lumbar spine BMD as an indicator of fragility fractures in patients with coeliac disease. We have shown using both univariate and multivariate analyses that many factors are associated with fragility fractures, but the lumber spine BMD was the best predictor. This study took the data another step further and adjusted the data for gender and age and added the ratio of BMI to BMD, but still reached a similar conclusion. Lumbar spine BMD shold be taken into consideration with more care in this group of patients.

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FRI0639 | **A NOVEL SCREENING METHOD FOR HYDROXYCHLOROQUINE MACULOPATHY**

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Background: Hydroxychloroquine maculopathy is irreversible, primary prevention is done by early screening. Published data show that thinning of the retinal outer nuclear layer (ONL) is an early feature which has been described as "The flying saucer sign".

Objectives: To determine the effect of retinal outer nuclear layer thinning on the progression of hydroxychloroquine retinopathy.

Methods: We used a Heidelberg Spectralis(R) Spectral Domain Ocular Coherence Tomography (SD OCT) scanner to record the volume of the ONL in 194 eyes of 100 patients who have been on Hydroxychloroquine for 5 years or more. Volume data was analysed using the Statistical Package for Social Sciences (SPSS), we used logistic regression method to determine the probability of developing maculopathy based of the degree of reduction of the ONL volume. We correlated the loss of ONL to changes in visual fields.

Results: Mean age: 62.2 years, 20% males and 80% females. Diagnosis: 68% rheumatoid arthritis, 14% Sjogren's syndrome, 16% Systemic Lupus and 2% others. Mean duration of use was 6.3 years. Logistic regression results show strong negative correlation between the ONL volume and probability of toxicity, a reduction of 0.5 mm3 of the ONL volume carries a 51% chance of developing maculopathy (P=0.001), the Hosmer-Lemeshow test indicates a high significance with a high P value of 0.61. Onset and progression of visual field defects strongly correlate to loss of ONL volume of 50% or more (P=0.000) and age above 35 years (P=0.0001).

Conclusion: Outer nuclear layer volume reduction provides an accurate and objective way of predicting the development of hydroxychloroquine retinopathy, this method also helps building a cooperative relationship between ophthalmologists and rheumatologists to establish an effective screening service.

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FRI0640 | **COMPARING DISEASE ACTIVITY IN THE WRIST BY REPEAT SYNOVIAL BIOPSIES, RAMRIS MAGNETIC RESONANCE SCORE AND EULAR-OMERACT ULTRASOUND SCORE: A 6-MONTH PROSPECTIVE TRIAL IN EARLY AND LONGSTANDING RHEUMATOID ARTHRITIS**

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Background: Standardized scoring systems for Rheumatoid Arthritis (RA) joint disease activity are validated in different imaging modalities and