Dunnett's post-hoc test: M vs FPREOC: P < 0.0001, FPRE vs FPREOC: P = 0.0007, FPOST vs FPREOC: P < 0.0001). IGFBP 3 was not different in females with and without oral E2 (median IGFBP 3 xULN (IQR) FPREOC vs FPRE: 0.62 (0.54 - 0.67) vs 0.60 (0.49 – 0.76), Kruskal-Wallis P = 0.295, Dunn's post-hoc test: P > 0.9999). This was also true between all other groups (Dunn's post-hoc test: P ≥ 0.4). In our adult cohort, ALS exhibited negative correlation with age (Pearson r = -0.282, P = 0.0003), similar to IGF-I and IGFBP 3. While IGF-I exhibited a moderate negative correlation to BMI (Pearson r = -0.25, P = 0.0013), IGFBP 3 and ALS were not significantly related to BMI.**Conclusion:** While IGF-I, IGFBP 3 and ALS all are known to be secreted in response to GH, and IGF-I and ALS are assumed to be produced by the same cells in the liver (hepatocytes), the three GH dependent biomarkers appear to be differently regulated by metabolic factors and oral E2. Only IGF-I has some modest association with BMI. Oral E2 is associated with reduced IGF-I, unchanged IGFBP 3 but increased ALS. While the mechanism behind the differential regulation remains to be uncovered, E2 therapy must be taken into account when interpreting IGF-I and ALS concentrations.

Bone and Mineral Metabolism

OSTEOPOROSIS: DIAGNOSIS AND CLINICAL ASPECTS

Radiofrequency Echographic Multi-Spectrometry (REMS) for the Assessment of Bone Strength and Fracture Risk Prediction

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Introduction Fragility bone fractures impact patient's quality of life and worldwide healthcare systems: accurate technologies and device are required in order to early diagnose and monitor the effect of osteoporosis on a mass-population basis. Several studied have analysed the pros and cons of the numerous technologies available nowadays for the diagnosis and monitoring of bone health, highlighting the need of further tools able to better define and estimate bone strength and to predict the risk of fracture [1].

Objectives The aim is to assess the state of the art about Radiofrequency Echographic Multi-Spectrometry (REMS).

Methods A review of the available literature was performed, considering full papers, reviews and abstracts on REMS published before January 31th 2020.

Results REMS has been recently presented by an ESCEO consensus paper as a valuable technology for osteoporosis diagnosis and fracture risk estimation [1]. It is based on the automatic processing of the raw unfiltered signals obtained with an ultrasound scan, thus overcoming the main drawback of dual-energy X-ray absorptiometry (DXA) and computed tomography (CT)-based technologies [2]. Moreover, REMS scans are performed at axial skeleton reference sites, i.e. lumbar spine [3] and femoral neck [4], differently from quantitative ultrasound (QUS) technology, which is usually applied to peripheral sites [3]. Clinical performance has been confirmed by a multicentre clinical trial enrolling over 1900 Caucasian women, demonstrating a high correlation between bone mineral density (BMD) estimated by REMS and DXA. In addition, high performance in terms of precision and intra- and inter-operator repeatability of REMS have been assessed [6]. Prospective studies have demonstrated the predictive ability of incident fragility fractures [7] and the high concordance with DXA in terms of measured BMD in patients with rheumatoid arthritis and pre/post-menopause [8, 9].

Conclusions REMS is an innovative approach for the early diagnosis, short-term monitoring of osteoporosis and risk fracture prediction. The available data envisaged for further applications in paediatric patients, pregnant women and patients at risk of secondary osteoporosis (e.g., diabetic, nephropathic, oncological patients). The EchoS system, a device implementing the REMS technology, has recently received the approval from the U.S. Food and Drug Administration (FDA).

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Reproductive Endocrinology

REPRODUCTIVE ENDOCRINOLOGY: REPRODUCTIVE FUNCTION AND DYSFUNCTION ON DEVELOPMENT

Association Between Sex Steroid and Metabolic Parameters in Cord Blood With Placental Fatty Acid Transporter in Obese Pregnant Women.

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Obesity reduces maternal insulin sensitivity and alters sex steroid serum concentrations. However, it is not clear if these changes are reflected in the fetal circulation. On the other hand, similar to other metabolic tissues, modifications in sex steroid concentrations and metabolic parameters could modify the transport and metabolism of fatty acids (FA) in the placenta increasing their availability for the fetus. Therefore, we aimed to study, in pregnant women with normal-weight and obesity, sex steroid serum concentrations in cord blood and their relationship with the gene expression of FA transporters and of molecules related with FA metabolism in the placenta. We included 26 pregnant women with normal-weight and 26 pregnant women with obesity without pregnancy complications. At term of pregnancy, mixed cord blood and placenta samples were collected and stored at -80°C. Serum concentrations of dehydroepiandrosterone (DHEA), DHEA sulfate