

## **First assessment of maternal status during pregnancy by means of REMS (Radiofrequency Echographic Multi Spectrometry) technology**

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**Objectives:** The maternal bone structure is the largest calcium reserve for the fetus during pregnancy, and this is claimed to lead to a bone mineral density (BMD) reduction in pregnant women. The aim of this study was to assess the maternal bone status at the end of pregnancy.

**Methods:** In this prospective study a non-consecutive group of Caucasian women with uncomplicated pregnancy at or > 35 weeks were enrolled at the Department of Obstetrics and Gynecology, University of Parma from February to April 2020. The study subjects were submitted to a sonographic examination of the proximal femur with REMS technology. REMS (Radiofrequency Echographic Multi-Spectrometry) technology is a novel radiation-free technology that allows to quantify the bone mineral status on the two axial reference sites for the diagnosis of osteoporosis, namely the femur or the spine. To evaluate the bone status variation induced by pregnancy, the REMS-BMD values obtained in the study group were compared with those of a control group of non-pregnant women matched for age and BMI.

**Results:** Overall 43 women at  $38.62 \pm 1.72$  wks were assessed. Among these, maternal age and BMI were respectively  $34 \pm 4.31$  y and  $23.85 \pm 4.56$  Kg/m<sup>2</sup>. Compared with non-pregnant women the femoral REMS-BMD values measured in pregnancy were significant lower ( $0.764 \pm 0.093$  vs  $0.828 \pm 0.089$  g/cm<sup>2</sup>, respectively;  $p < 0.0001$ ) with a mean BMD reduction of 8.4%.

**Conclusions:** For the first time a decrease of bone mineral density has been objectively demonstrated in pregnant compared with non-pregnant women by means of REMS technology.