

Selected Abstracts of the 12th International Workshop on Neonatology

10 P PEDIATRICS: NOTES FOR THE FUTURE

CAGLIARI (ITALY) • OCTOBER 19TH-22ND, 2016

The Workshop has been organized with the patronage of the Italian Society of Neonatology (SIN), the Italian Society of Pediatrics (SIP), the Italian Society of Perinatal Medicine (SIMP), the Italian DOHaD (Developmental Origins of Health and Disease) Society, the Union of European Neonatal and Perinatal Societies (UENPS), the Union of Mediterranean Neonatal Societies (UMENS), the International Federation of Clinical Chemistry and Laboratory Medicine (IFCC), the Union of Middle-Eastern and Mediterranean Pediatric Societies (UMEMPS), and lastly the European Association of Perinatal Medicine (EAPM).

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diabetes in this population. Most women suffering from PCOS are obese or overweight.

A NEW THEORY ABOUT POLYCYSTIC OVARIAN SYNDROME

We propose a new theory about the development of PCOS: the dysbiosis of gut microbiota (DOGMA). The DOGMA can result in the activation of the immune system of the host, triggering a chronic inflammatory response that impairs insulin receptor function and induces a state of insulin resistance. The resulting hyperinsulinemia interferes with follicular development (excess of androgen production by the ovarian theca cells).

THE PATHOPHYSIOLOGICAL KEY OF DOGMA

A diet high in saturated fats and refined sugars can favor the growth of “bad” Gram-negative bacteria reducing the growth of beneficial “good” bacteria (*B. lactis* BSO1, *L. acidophilus* LAO2, *L. paracasei* LPC00, *L. salivarius* LS03, *L. plantarum* LP02, *L. rhamnosus* LR06). The cell wall of Gram-negative bacteria contains a powerful immunomodulator called lipopolisaccharide (LPS). LPS can cause the activation of the innate immune system. Secondly, the diet high in saturated fats and sugar and low in fibers leads to an increase of the gut mucosal permeability, facilitating the transfer of LPS from the gut lumen into the circulatory system. This state of “metabolic endotoxemia” causes a chronic activation of hepatic and tissue macrophages and alters insulin receptor function and results in insulin-resistance. Hyperinsulinemia causes an increased production of androgens in the ovaries and slows down the normal ovulatory process. Follicle development stops and small-to-medium size antral follicles (2-10 mm) do not develop into mature “ovulatory” follicles.

CONCLUSIONS

The gut microbiota and lifestyle play an important role in the prevention of metabolic syndrome, PCOS and other metabolic diseases.

ABS 76

MATERNAL OBESITY: INFLAMMATORY AND ANTIOXIDANT MARKERS IN SALIVA

G.M. Anelli¹, M. Zambon¹, C. Mandò¹, B. Bottazzi², C. Novielli¹, C. Garlanda², I. Cetin¹, S. Abati³

¹Department of Biomedical and Clinical Sciences, Unit of Obstetrics-Gynecology, L. Sacco Hospital, University of Milan, Milan, Italy

²Humanitas Clinical and Research Center, Milan, Italy

³San Paolo Hospital, University of Milan, Milan, Italy

INTRODUCTION

Maternal Obesity (MO) is due to calories imbalance and incorrect dietary intake. Obesity results in chronic mild inflammation and oxidative stress. Moreover, MO exerts its influence on perinatal and

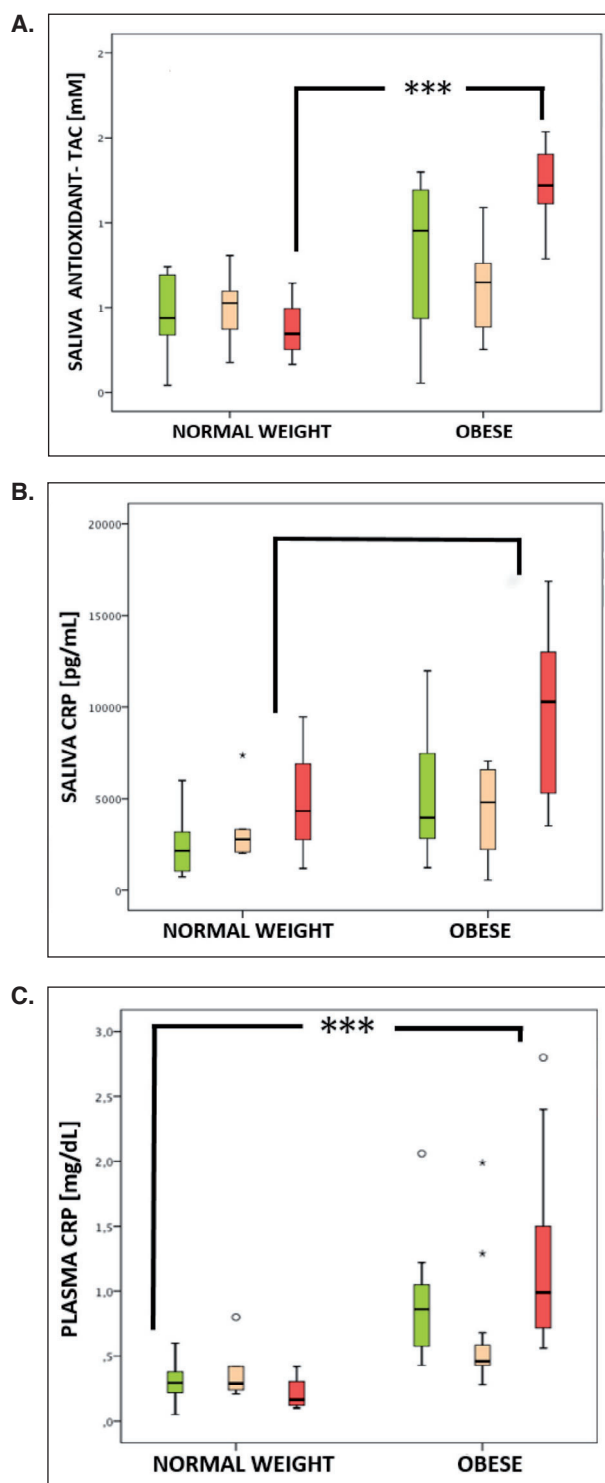


Figure 1 (ABS 76). Saliva total antioxidant capacity (A), salivary C-reactive protein (B) and plasmatic C-reactive protein (C) in normal weight (NW) and obese women.

T-Test: *** $p < 0.001$ vs NW.

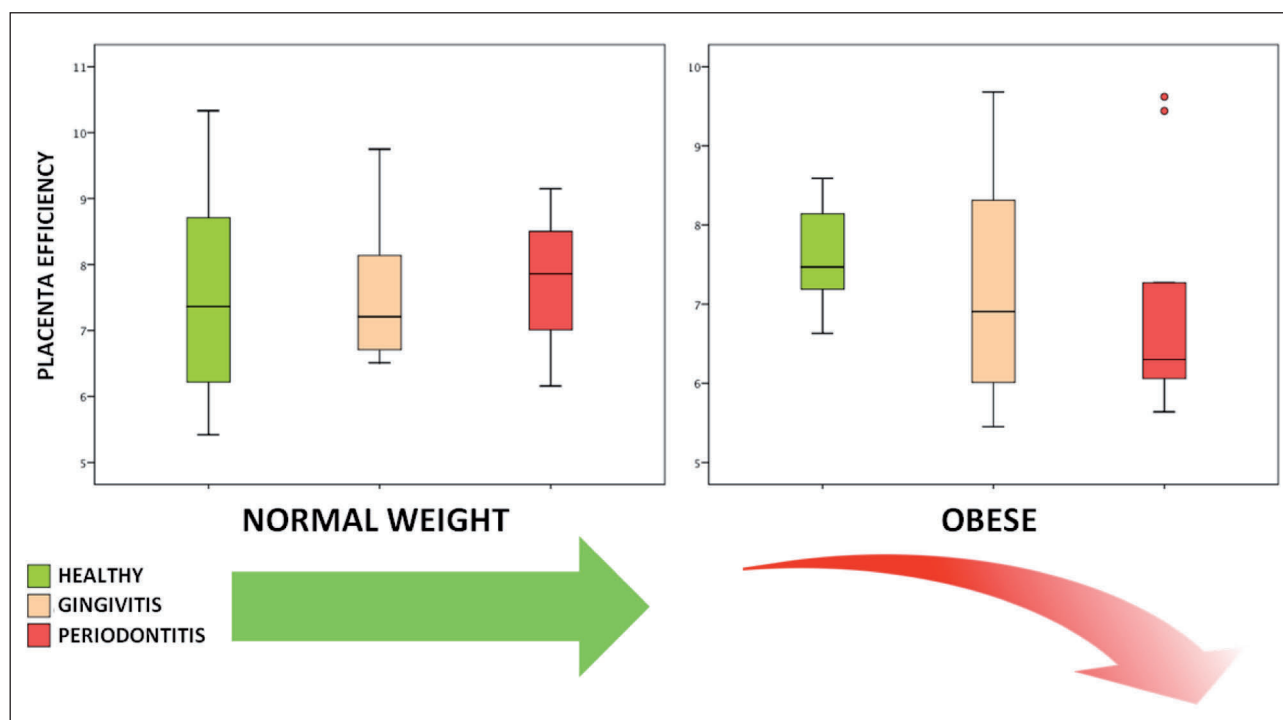


Figure 2 (ABS 76) Placental efficiency (fetal/placental weight).

childhood outcomes, related to maternal excessive Body Mass Index (BMI) and/or Gestational Weight Gain (GWG). Few studies investigated saliva biomarkers in pregnant women. Here we analyzed C-reactive protein (CRP) and total antioxidant capacity (TAC) in the saliva of pregnant women with pre-pregnancy obesity, extending our preliminary data [1].

METHODS

62 singleton-pregnant women (27 normal weight [NW] – BMI 18-24.9; 35 obese [OB] – BMI ≥ 30) were studied at 3rd trimester. Occurrence of periodontal disease – gingivitis or periodontitis – was assessed by an oral clinical exam [1]. Unstimulated saliva was analyzed to detect CRP (ELISA) and TAC (AntiOxidant Assay); CRP was also measured in plasma with an immunoturbidimetric assay. Clinical and molecular data were analyzed with T-test and Pearson Correlation ($p < 0.05$).

RESULTS

Saliva TAC, saliva and plasma CRP were significantly higher in obese compared to normal weight women ($p < 0.001$) and they correlated with each other ($p < 0.001$; $r > 0.60$) and with maternal pre-pregnancy BMI ($p < 0.001$; $r > 0.51$). Frequency of periodontal disease was significantly higher in OB (80%) compared to NW women (52%) [$\chi^2 = 4.31$, $\phi = 0.30$, $p = 0.04$]. Periodontal disease in NW did not enhance molecular data, while

their levels were higher in OB with periodontitis (saliva TAC and plasma CRP: $p = 0.001$) (**Fig. 1**). Placental efficiency (fetal/placental weight) showed a downward trend only in OB depending on periodontal disease severity (**Fig. 2**).

CONCLUSIONS

Mild inflammation is reported in tissues of OB subjects, but little is known about OB markers in saliva, an effective non-invasive diagnostic tool. The increase in CRP in OB plasma, as a marker of systemic inflammation, was confirmed in saliva. Higher saliva TAC suggests the induction of systemic antioxidant response, detectable in obese subjects. The higher periodontal disease frequency in OB might enhance CRP and compensatory TAC defenses, driven by both obesity and periodontal disease. These effects may also influence placenta efficiency.

REFERENCES

- [1] Mandò C, Mazzocco MI, Anelli GM, Novielli C, Lissoni A, Castellani P, Cardellicchio M, Bottazzi B, Zambon M, Garland C, Cetin I, Abati S. Obesity and periodontal diseases in pregnancy: inflammation and antioxidant levels in saliva. *J Matern Fetal Neonatal Med.* 2016;29(S1):98.

ABS 77

MONITORING AND SUPPORTING MATERNAL COMPETENCE IN PRETERM CONDITIONS: A LONGITUDINAL STUDY USING Q-SORT