NINTH INTERNATIONAL CONFERENCE ON RADIATION IN VARIOUS FIELDS OF RESEARCH

June 14-18, 2021 | Hunguest Hotel Sun Resort | Herceg Novi | Montenegro

RELATIONSHIP BETWEEN MATERNAL INFLAMMATORY AND OXIDATIVE DISTURBANCES IN SPONTANEOUSLY DECLARED PRETERM BIRTH

Iliana Koleva, Maria Angelova, Galina Nikolova, Yanka Karamalakova

[1] Chemistry and Biochemistry, Medical Faculty, Trakia University, 11 Armeiska Str., 6000 Stara Zagora, Bulgia;
[2]Obstetrics and Gynaecology Clinic, UMHAT "Prof. St. Kirkovich" 6000, Stara Zagora, Bulgaria

Introduction

Spontaneous preterm birth is the basic problem of perinatal mortality in Bulgaria. Pregnancy is characterized by physiological inflammatory and oxidative disturbances- determined by twice increaced neutrophils levels, reactive oxygen levels, and a reduction in the levels of antioxidant enzymes. The objective of the study was to investigate and to appreciate the levels of oxidative stress and inflammatory markers in patients with spontaneous preterm birth and term birth declared cases. The case–control study was performed in UMBAL-City Hospital, Stara Zagora during 2018–2020. The study involved 200 patients, determined in two groups: Group 1- the healthy, term birth declared cases (TB), n1=100 (20-32 y.o.) at gestational age 34+0–36+6 weeks; Group 2-The spontaneous preterm birth patients (SPTB), n2=100 (17-38 years old) confirmed clinically by cardiotocography for gestation >32 weeks. For this purpose we measured the levels of C-reactive protein (CRP), leukocyte activation (neutrophils count), total antioxidant status (TAC), malondyaldehyde (MDA) and ROS production.

The results showed statistically significant elevated concentrations of CRP, Leuco (14.31±2.66×109/L, p>0.03; in normal-15x109L), MDA, Asc, NO, ROS radicals production, and significantly lower TAC concentrations in PTB pregnant women as compared with TB women.

Our data suggest that PE pregnancy is associated with an enhanced maternal inflammatory condition, which is reflected in fetal circulation. This enhanced inflammatory state seems to be related to endothelial dysfunction and increased cytokine synthesis, rather than with neutrophil activation.

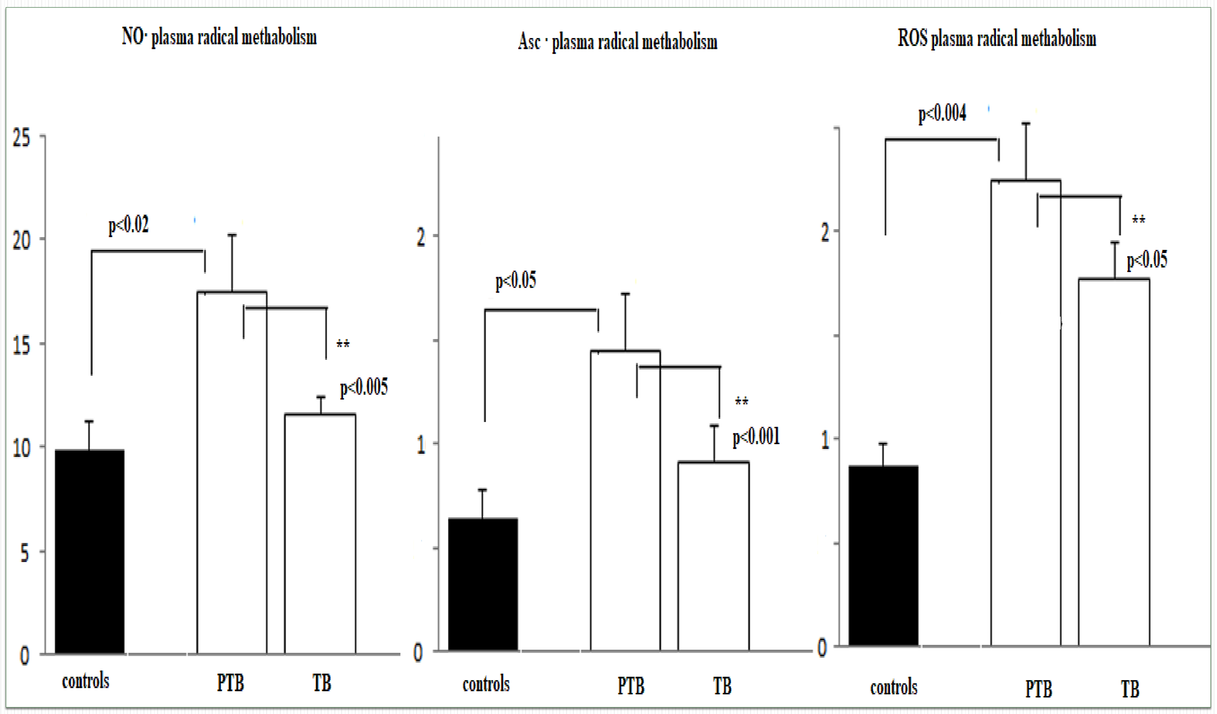
Key words: Leuc, SPTB, TB, leukocytosis

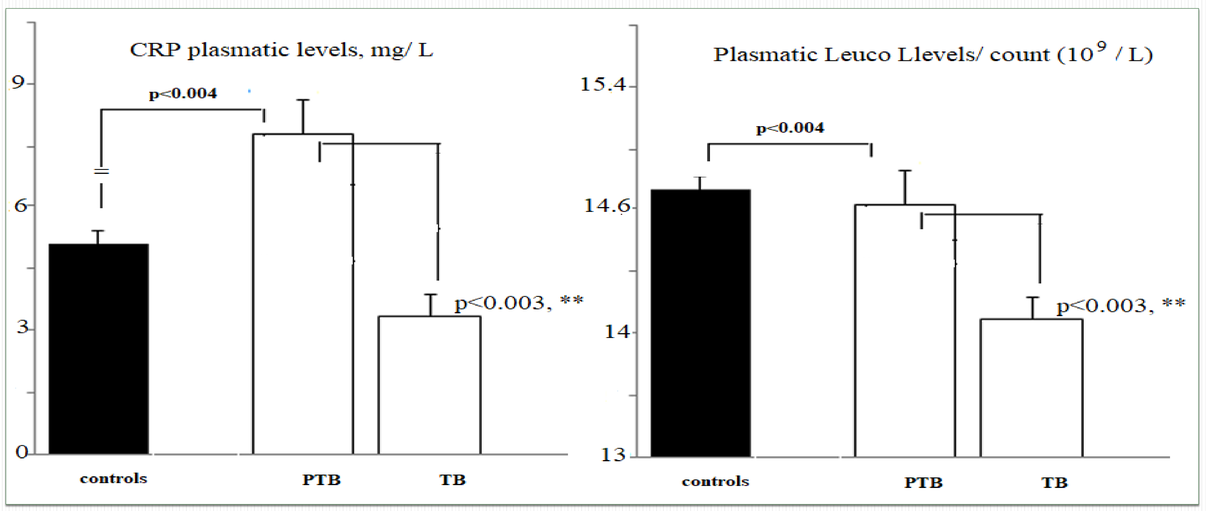
Results

Table 1: Clinical characteristics of the study participants.

Characteristics	Group 1 (n=100) 37-39^{+6} g.week	Group 2 (n=100) 32-34^{+6} g.week	*p
Maternal age (y)	26.9 ± 5.8	31.8 ± 4.12	0.043[a, LSD test]
Gestational age, (wк)	38.2 ± 1.9	32.9 ± 4.12	≤0.004 [a, LSD test]
Body mass index (BMI), kg/m^2	39.6 ±2.6	19.3 ± 0.81	≤0.055[a, LSD test]
Infections	None	None	≤0.00
Tobacco use	None	None	≤0.00
Alcohol use	None	None	≤0.00
Abortion	none	none	-
PPROM	none	none	-
Cardio-vascular disease	NA-not applicable	NA	-
previous PTB	0.00	0.00(0-2)	≤0.00

Source: Author





Acknowledgement This research was supported by NUP – TRU, Stara Zagora, 1/2020.