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ASSESSMENT OF CARDIOVASCULAR AND IMMUNOLOGICAL PARAMETERS IN PREGNANT WOMEN WITH ARTERIAL HYPERTENSION

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Hypertensive disorders of pregnancy are associated with maternal cardiovascular and immunological alterations. Investigation of macrophage–lymphocyte rosettes (MLR) formation in vitro provides additional information.

Purpose: Our purpose was to assess cardiovascular changes and activity of immunocompetent cells in pregnant women with hypertensive disorders and to evaluate their dynamics during treatment.

Methods: We observed 90 pregnant women aged 18-45y. Arterial hypertension was detected in 24, among them 4 women had preexisting hypertension, 8 had a gestational arterial hypertension, 12 – preeclampsia without other co-morbidities. All P underwent Ecg, echocardiography(TTE), lab tests and estimation of MLR formation in 72-hour blood leukocyte cultures.

In healthy donors amount of MLR equals 37,4 ±2.2%, In the physiological pregnant women (ph P) MLR decreases to 22-30%. Elevated levels of MLR were observed in AH compared to healthy Pregnant. Previous studies showed that MLR in vitro increases significantly in P with stress and premature birth. We divided Pregnant women into 4 groups(gr): I- physiological pregnant P, II- P with preexisting hypertension, III- P with gestational arterial hypertension, IV- P with preeclampsia.

Results: In I gr amount of MLR was in normal range for pregnant(18 – 29%), while it was moderately increased in II and III gr (30-40%) and significantly increased in IV gr (45-60%) indicating impending premature birth. Notable, that 3P with preexisting hypertension developed peripartum cardiomyopathy after 36 weeks of pregnancy. According to TTE mild mitral regurgitation was observed in 85% of physiological pregnancies, while 33% of pregnants with AH had mild MR and the rest 67% had moderate MR. Left atrial size was normal in physiological pregnancy, in pregnants with arterial hypertension it was normal or borderline increased, in 3 with preeclampsia it was increased. These 3P revealed PPCM with diastolic dysfunction - impaired relaxation, decreased ejection fraction and markedly increased NT-proBNP. In other P with AH or preeclampsia, EF was preserved. Diastolic dysfunction was observed only in 6 Patients with preeclampsia (50% of PE) including Pregnants with PPCM. After treatment and

delivery, normalization of blood pressure, resolution of volume overload, and marked reduction of MLR up to normal range were observed.

Conclusions: Hypertensive disorders of pregnancy are associated with increased MLR formation, reflecting activation of immunological processes. Reduction of MLR levels in parallel with clinical and hemodynamic stabilization, suggests its potential role as a marker for disease severity and effectiveness of treatment in addition to Echo data. Future studies in this direction is reasonable.

Keywords: Pregnancy; Arterial Hypertension; Cardio-Immunology; Echocardiography; Cardiovascular Changes