Medium molecular weight molecules (MMWM) act as secondary factors of endogenic intoxication and are used as its markers. They can inhibit lactate dehydrogenase, adenylate cyclase, pyruvate dehydrogenase, transketolase isoforms activities, causing metabolic pathways disturbances. Aim of this study was to investigate changes in amniotic fluid (AF) MMWM contents of pregnant women with hard inborn defects of fetal development and their adverse effects on futher development and health status.

Amniotic fluids from 45 women (age 18–35 years old), 5 women with antibodies to herpes virus and cytomegalo virus) were obtained via trans abdominal amniocentesis at general prescriptions. MMWM contents were studied by Babel screening method (Babel A, 1974). Among fetal BBP dominated defects of central nervous system, kidney, skeleton and abdominal wall. Statistic analysis of results demonstrated that parameters of total MMWM fraction in AF during gestation were increased (statistically significant changes) to 30% at 16–20 weeks period, to 48% at 21–24 weeks period, to 50% at 25–28 weeks period. During last of these periods in fetus take place development of cerebellum. Thus such changes of total MMWM fraction could cause structural changes in brain structures. It could be supposed that higher level of total MMWM fraction at 25–28 weeks period which coincided with brain development was connected with neurotoxic action of MMWM as abnormalities of central nervous system prevailed among studied inborn defects. Central nervous system cells damage in future could cause to disbalance of neurohumoral regulation and homeostatic processes. It could not be excluded that such increasing of MMWM was the result of metabolic processes discoordination and genetic programme modification or defects in catabolites elimination processes as it was previously demonstrated for medium weight toxins participation in kidney failure development.

Medium molecular weight molecules (MMWM) or medium molecules are known as important universal markers of intoxication. Main part of them is represented by polypeptides with molecular weights 300–5000 D. It was shown that these peptides not only caused endogenic intoxication syndrome, but also disfunctions of hematocencephalic barrier, micro circulation processes, mitochondrial oxidation, amino acids, Na+ and K+ transport through membranes, inhibited immune reactions of organism. Aim of this study was to investigate changes in amniotic fluid (AF) MMWM contents of pregnant women with normal fetal development at different terms of gestation.

Amniotic fluids from 50 women (age 18–35 years old) were obtained via trans abdominal amniocentesis at general prescriptions. MMWM contents were studied by Babel screening method (Babel A, 1974). Statistic analysis of results demonstrated that parameters of total MMWM fraction in AF during gestation remained stable. In case of pregnant women separation on four weekly cycles changes were not statistically significant for first 12 weeks and then for 16–20, 21–24, 25–28 weeks periods. Thus it can be supposed that such changes of total MMWM fraction were caused by adequate formation of metabolic pathways between mother and fetus via coordination of biochemical processes. Their extended investigation could be necessary for adequate investigation of total MMWM fraction with different inborn pathologies caused by infections.