**Compensatory and regenerative potential in kidneys of newborns from mothers with complicated pregnancy by preeclampsia and iron deficiency anemia**

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**Background and objective.** Preeclampsia (PE) and iron deficiency anemia (IDA) are pregnancy complications that have a negative effect on women health, their offspring. The objective was to reveal the compensatory and regenerative potential in newborns kidneys that developed under maternal PE, IDA conditions.

**Methods.** The study material was the tissue of kidneys of newborns from mothers with physiological pregnancy (n=28) (group (G) 1); complicated pregnancy by PE of varying degrees of severity (n=78) (G 2), IDA of varying degrees of severity (n=85) (G 3). Histological, immunohistochemical, morphometrical, statistical methods were used.

**Results.** Innewborns kidneys of G 2, G 3 it was revealed a deficiency of nephrons with the presence of alterative changes in them, compensatory hypertrophy of some glomeruli with hyperplasia of capillary loops mainly in G 3. Proliferative activity of nephrons structural elements increased in G 2 (Ki-67 proliferative index (PI) – (21.3±2.1)%), G 3 (Ki-67 PI – (38.9±2.7)%) compared with G 1 (Ki-67 PI – (12.5±1.9)%), however, was more pronounced in G 3. In G 2 and especially G 3, there was a compensatory angiogenesis activation, as evidenced by an increase in the number of vessels in stroma in these groups (G 2 – 8.3±1.2, G 3 – 11.4±2.1) compared to G 1 (5.6±0.9).

**Conclusions.** In kidneys of newborns from mothers whose pregnancy was complicated by PE and IDA, compensatory and regenerative processes characterized by hypertrophy of glomeruli with hyperplasia of capillary loops, activation of proliferative potential of nephrons cells, angiogenesis activation. The latter were more pronounced in kidneys of newborns that developed under maternal IDA conditions. The data obtained by the authors indicate a more pronounced damaging effect on the newborns kidneys of maternal PE compared to IDA.

**Key words:** compensatory and regenerative potential, complicated pregnancy, iron deficiency anemia, kidneys, newborns, preeclampsia.