

Index and living in Medvezhyegorsk region where Median Hg concentration higher than the general Median Hg concentration:  $B = 2.41$ , 95% CI 2.38 – 2.44;  $p = 0,000$ ;  $Y = 2.41 - 0,093X$ ;  $R^2 = 0,064$ ,  $p = 0,001$ ). Weight and growth characteristics of newborns were significantly influenced by gestational age, newborn's gender and living in rural area.

#### Conclusions

Despite the high concentration of mercury in the mother's hair and the cord blood of newborns, a reliable relationship was established between mercury and weight-growth characteristics only according to the Ponderal Index. Perhaps this is due to certain local conditions and other confounders, which require further analysis.

## Exposure to mercury and weight-growth characteristics of the newborns in Republic of Karelia, Russia

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### Background

Exposure to mercury during pregnancy is one of important public health problem due to distant consequence on fetus and human health. In our biomonitoring study, we tried to confirm the association between mercury concentration and its exposure on weight-growth characteristic of newborns.

### Methods

A human biomonitoring study of 252 women in birth from five maternity hospitals of Republic of Karelia was carried out in 2016 using the WHO standard methodology. For the establishment of the association between mercury level and weight-growth characteristics of newborn statistical tests and the linear regression analysis was carried out.

### Results

Prenatal exposure to mercury was characterized by high levels: the Geometric Mean (HgHair) was 0.534  $\mu\text{g/g}$  (min 0.033  $\mu\text{g/g}$  – max 8.000  $\mu\text{g/g}$ ), Hg concentrations exceeded referral level 1  $\mu\text{g/g}$  in 23% of cases (58/252); the Geometric Mean (HgCordBlood) was 2.29  $\mu\text{g/l}$  (min 0.13  $\mu\text{g/l}$  – max 36.23  $\mu\text{g/l}$ ), Hg concentrations exceeded referral level 5.0  $\mu\text{g/l}$  in 22,6% cases (57/252).

We did not find a significant association between mercury level and weight-growth characteristics (length, weight, head circumference and Cephalization Index) of the newborn through statistical tests. But the linear regression analysis defined negative and significant association between Ponderal