

Trace element levels in urban Ghanaian pregnant women

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Abstract

The trace elements used in the study are zinc, copper, selenium and iron, these have been implicated in various reproductive events.

Maternal trace elements intake and their concentration are important for maternal and fetal well-being; however, data is insufficient in Ghanaian pregnant women. Especially, their concentration according to the pregnancy course (1st, 2nd, and 3rd trimester) should be determined, which may provide fundamental data of this issue. The maternal blood level of four trace elements; zinc, copper, selenium and iron, were determined according to the gestational age in Ghanaian pregnant women. The study was conducted between December 2009 to April 2010. Blood samples were taken from 150 pregnant women (50 for each trimester) and 50 non-pregnant women (control): concentration of four trace elements were measured using Flame Atomic Absorptive Spectrophotometer. The data (mean \pm SD; ug/L) were as follows; in the order of control, 1st, 2nd, and 3rd trimester.

1) For zinc, 313 ± 211 , 101 ± 92 , 66 ± 63 , and 443 ± 321 . 2) For copper; 345 ± 261 , 1349 ± 418 , 1507 ± 388 , and 1811 ± 344 . 3) For selenium; 99 ± 25 , 56 ± 17 , 163 ± 38 , and 261 ± 84 . 4) For iron; 43.2 ± 15.2 , 27.3 ± 15.7 , 28.7 ± 17.2 , and $40.5 \pm 17 \text{ug/L}$. Although each trace element showed various/specific concentrations according to the gestational age, overall tendency was; a decline at 1st and 2nd trimester, and increase at 3rd trimester. The latter may be due to the introduction of supplementation. These data may be of use to consider maternal nutritional status in this area.

Objective: To estimate the levels of zinc, copper, iron and selenium in pregnancy. Subjects were recruited from the Osu Maternity Home (OMH).

Biography

Efua Amuaba Appiah has completed her BSc in Chemical Pathology from university of Ghana, Legon and Mphil in Chemical Pathology from Kwame Nkrumah university of science and technology. She works as a Scientific Officer currently at the Ghana Standards Authority.



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