



Risk Factors and Recommendations for the Treatment of Anemia in Pregnant Women (Literature Review)

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ABSTRACT: Anemia is a disease in which the level of hemoglobin in the blood decreases, often with a concomitant reduction in the number of red blood cells. The main cause of anemia is a discrepancy between iron intake and expenditure. During pregnancy, the expenditure for the needs of the growing foetus leads to a considerable increase in the need for iron. In addition, inadequate intake of folic acid or vitamin B12 may be a rarer but possible cause of anemia [3,5].

Keyword: anemia in pregnant women, risk factors, recommendations

Introduction: Anemia is one of the most common complications of pregnancy. In Russia every third pregnant woman is diagnosed with anemia. However, not everyone who encounters this diagnosis understands what it is and what needs to be done to make treatment as effective as possible. The overall nutritional status of women of reproductive age (15-49 years) and pregnant women in Uzbekistan has improved steadily over the past two decades [1,2].

A 2008 national study found that a little over 34 per cent of women of reproductive age suffered from anemia. That study also showed that iron and folic acid deficiency affected 48 per cent and 29 per cent of adult women, respectively. The prevalence of anemia among pregnant women was last assessed in 2002 and was almost 50 per cent according to the WHO classification, indicating serious health problems. Data on deficiencies of other micronutrients in women of reproductive age and children under 5 years of age are extremely scarce and cover only some geographical areas of Uzbekistan[4,6]. A 2002 study found that an important public health problem among women in Uzbekistan in recent years has not been under-nutrition, but rather over-eating: an estimated 43 per cent of women in the country are overweight and 17 per cent are obese. Currently, the two main carriers of food fortification in Uzbekistan are salt and wheat flour. Since 2011, iodization of salt has become a mandatory requirement and the established standard is 40 ± 15 mg of iodine per kilogram of salt. Wheat flour is fortified mainly with first-grade flour (extraction coefficient of 75 per cent) produced by mills in Uzbekistan. The micronutrient premix also contains folic acid and zinc. An estimated 61 per cent of the country's population consumed fortified wheat flour in 2007. More than 90 percent of respondents at the household level reported consuming iodized salt, an information which was also confirmed by the salt packet labels provided (80 percent). However, quantitative salt analysis showed a very different picture: only 40 per cent of salt samples had the appropriate amount of iodine, and salt

samples with packaging indicating that salt is "iodized" contained less iodine than salt samples that had no such information, or samples where salt was not stored in its original packaging [7,8]. Overall, only about one third of wheat flour has been appropriately fortified. However, legislation does not require fortification of all types of flour, for example imported flour and some locally produced flour. While malnutrition in non-pregnant women is not widespread in Uzbekistan, the prevalence of overweight and obesity is significant. In addition, there is an important trend indicating an increase in overweight/obesity among women in relation to age. As previous estimates have used different age groups, it is difficult to determine whether the prevalence of overweight or obesity has increased in recent years, but the current situation is still noteworthy. One fifth of non-pregnant women are anemic, iron deficiency is very high among non-pregnant women and 80 per cent of anemia is probably due to iron deficiency [9]. There are regional variations in both anemia and iron deficiency. Vitamin A deficiency in Uzbekistan is not common among non-pregnant women, while folic acid deficiency occurs in about 40 per cent and vitamin B12 deficiency in 20 per cent of women. Although non-pregnant women receive sufficient iodine at the national level, there are regions where iodine deficiency is a problem. It is also important to note that the 2017 PUI found that women living in households without iodised salt at the time of the survey were iodine deficient, while women from households with at least some or adequate iodine content were not iodine deficient [10]. One third of pregnant women are anaemic and 40 per cent of them are in the third trimester of pregnancy. Pregnant women in general are iodine deficient, but there are no deficiencies among pregnant women living in households with adequately iodides salt. Strengths and limitations: The 2017 PUI was planned to be representative of data for each of the 14 regions, and the planned data were derived from a high response rate. Lack of up-to-date census data prior to the data collection process required significant effort from the research team in obtaining estimated population size at the mahalla level [11,12]. Despite these efforts, it is not possible to assess whether this approach has provided a true reflection of the actual population size in Uzbekistan, as there is no recent census data with which to compare the findings. The Hemo Cue [2,14] was used to measure hemoglobin concentrations in the 2017 PUI. The use of this device has been reported to underestimate the prevalence of anaemia compared with similar instruments (e.g. HemoCue 201+), but the fact that venous blood samples were collected during the study reduces the variation compared with capillary blood samples. Thus, the prevalence of anemia in the 2017 PUI is likely to be lower than if measurements had been taken using alternative measuring instruments. Nevertheless, there is a decreasing trend in the prevalence of anemia compared with the 2008 study, where the same hemoglobin measurement techniques were used. In comparison with previous assessments, quantitative salt iodine content analysis allowed a more accurate assessment of household coverage with adequate iodides salt. In addition, urine sampling of women from half of the sampled households allowed a correlation between salt iodine content and urine iodine concentration. Due to budgetary constraints, women from only half of the households were included in the present study. This approach does not compromise the representativeness of the results and ensures sufficient accuracy, but limits the analysis of data in mother-child pairs. In addition, information on individual infectious diseases or helminthes was not collected in the 2017 UIS, hence the impact of these factors on nutrition and health status was not taken into account. Good data quality for child anthropometric measurements was found in all regions except Bukhara[1,13,15].

Recommendations :

1. Enforce legislation on salt iodination: women living in households without iodides salt suffer from iodine deficiency; information on salt iodination on labels does not correspond to the actual iodine content of salt, despite existing standards. Legislation should therefore be strengthened at the production, import and distribution levels;
2. Reinforce wheat flour fortification standards: Household coverage of properly fortified flour is relatively low. This is partly due to the fact that there is a large proportion of flour types, for which

fortification is not mandatory, particularly imported flour. Thus, wheat flour fortification standards should be updated to cover all wheat flour (both imported and domestically produced) intended for human consumption. There is a need to ensure that legislation on this issue is appropriately enforced. The recently updated flour fortification standard provides for inclusion of vitamin B12; consequently, vitamin B12 deficiencies will decrease as the coverage of fortified flour increases.

3. Reduce rates of overweight and obesity among non-pregnant women: This is an issue that deserves attention because of the high prevalence of overweight and obesity among women. As the prevalence of these conditions increases with age and in relation to the number of births, antenatal and postnatal care providers can talk to the population to change current practices;
4. Monitoring the prevalence of overweight and obesity among women, relevant stakeholders should consider monitoring overweight and obesity among non-pregnant women in future nutrition and health assessments. In addition, stakeholders can develop behavior change communication campaigns to instill 'right' behavioral practices at an early age in order to prevent an increase in overweight and obesity in this group.
5. Strengthen other strategies to address micronutrient deficiencies: infant and young child feeding practices should be further improved, and a diverse diet should be provided for non-pregnant women. This can be done during antenatal and postnatal visits by health workers and as part of school programs.

Conclusions: Thus, although 50 per cent of pregnant women were taking iron and folic acid to prevent potential nutrient deficiencies, coverage should continue to be increased in times of increased need. Consideration should also be given to providing supplements of various micronutrients, rather than iron and folic acid alone, as a cost-effective alternative, not only for pregnant women living in rural areas. Since the food consumed by children cannot fully meet their micronutrient needs, fortification of staple foods may not be the most appropriate way to reach children aged 6-23 months. Micronutrient powder distribution programmes could therefore be envisaged for this age group, and especially in the most vulnerable regions.

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