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Effect of dietary intake on the iron status of the pregnant mothers in a rural population of the Kandy district

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Iron deficiency anemia (IDA) is a widely prevalent disorder in all segments of the population in the developing world, specially affecting pregnant women. This study investigates the dietary intake and the iron status of pregnant mothers in a rural population. Sixty two pregnant mothers, aged 18-35 years, in the second trimester of pregnancy attending ante-natal clinics (first visit) in the Kandy district, were included as the study sample, while 33, age matched, non pregnant, non lactating subjects were included as the control group. A three consecutive day 24 h recall dietary survey was conducted, with weighing of cooked foods on one day. Food composition tables were used to calculate the nutrient intake per day. Blood samples collected from both groups were analysed for haemoglobin (Hb), serum ferritin and soluble transferrin receptor assay (sTfR). The diagnostic cutoff for IDA for pregnant mothers was as follows. Hb < 11.0 g/dL, s. ferritin $\leq$ 12 μg/ L and sTfR > 2.8 mg/ L.

Among the sample population, eight pregnant mothers were found to be iron deficient as indicated by all three parameters. The mean values for the pregnant and non-pregnant mothers were: Hb:11.7$\pm$1.13 g/dL, 12.4$\pm$0.86 g/dL; s.ferritin:30.1$\pm$19.5 μg/L, 28.3 $\pm$14.1 μg/L and sTfR:2.4 $\pm$1.62 μg/L,1.9$\pm$0.75 μg/L, respectively. The nutrient intake per day, of the study sample and control group were respectively, as follows: energy :1610 $\pm$578 kcal and 1937$\pm$387 kcal, calcium:492$\pm$264 mg and 419$\pm$210 mg, iron:16.1$\pm$8.4 mg and 19.0 $\pm$6.8 mg and vitamin A:415$\pm$332 μg and 262$\pm$169 μg. The nutrient intake from dietary sources of haem iron (1.26 $\pm$1.22 mg>0.663$\pm$0.61 mg), calcium (515$\pm$256 mg>322$\pm$198 mg) and β-carotene (1238 $\pm$1775 μg>441$\pm$633 μg) by iron deficient mothers were significantly lower (*p=0.05*) as compared to non deficient pregnant mothers. On the other hand, the nutrient intake from dietary sources by the control group, showed a significant higher intake (*p=0.05*) of vitamin A (226 $\pm$148 μg>158 $\pm$105 μg) and β-carotene (1238$\pm$1775 μg > 560$\pm$636 μg) as compared to non iron deficient pregnant mothers. The study shows that the rural population is mainly dependent on plant based foods as a source of dietary iron. A specially designed dietary intervention could contribute to reduce the IDA of the population.

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