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NITAYA LERTMULLIGAPORN : EFFECT OF DAILY VERSUS WEEKLY IRON SUPPLEMENTATION IN RURAL NORTHEASTERN PREGNANT WOMEN, THAILAND. THESIS ADVISORS: PATTANEE WINICHAGOON, Ph.D., PRAPAISRI SIRICHAKWAL, Ph.D., NIPA ROJROONGWASINKUL, M.Sc., CHUREEPORN CHITCHUMROONCHOKCHAI, M.Sc., 172P. ISBN 974-664-042-9

The elevated iron requirement of pregnant women indicates the need for increasing a prepregnant reserve and providing iron supplements during pregnancy. The effect of daily vs. weekly iron supplementation in pregnant women was investigated. It was hypothesized that weekly iron supplementation was as effective as a daily dose. Three hundred and seventy-nine apparently healthy pregnant women at 12-18 weeks of gestational age were included, and randomly assigned to the daily (G60D), high weekly (G180W) and low weekly (G120W) groups receiving 60, 180, 120 mg element iron, respectively. Treatment groups were done at a village level. There were no significant differences among the three groups in background characteristics. Based on 24-hr recall, the intakes of calories and iron were 1400-1800 Kcal and 10-11 mg per day, which were quite low compared to the RDA.

Baseline mean hemoglobin (Hb), serum ferritin (SF) levels were not statistically different among three groups and prevalence of anemia was 27.7, 25.2 and 18.9%, respectively. After 21 weeks of iron supplementation, the prevalence was 22.7% in daily, slightly decreased (22.5%) in high weekly and increased (31.5%) in low weekly dose. About 21% of subjects were below 20 years old, and 42.5% of the pregnant women had abnormal hemoglobin type. Repeated measures ANOVA was used in the analysis to control for possible confounders, namely, age, initial hemoglobin and hemoglobin type. The response among pregnant women having abnormal hemoglobin type showed similar pattern to those having normal hemoglobin type, but less in magnitude. The anemic group responded more than the non-anemic group. Side effects were reported more frequently. They were most highly reported in the G120W but occurred with a shorter duration than in G60D and G180W. The severity of side effect was the most in G180W.

In conclusion, there was no significant difference in the effects of supplementation regimens on hemoglobin, while the 60 mg/d group responded the best in improving iron status. The serum ferritin was significant lower after supplementation in all groups, both weekly groups had significant lower ferritin than daily dose. Weekly iron supplementation can not be recommended for control of iron deficiency anemia during pregnancy.