

CHAPTER VII

DISCUSSION

The results of this study rejected the hypothesis that the major cause of anemia among reproductive age group non pregnant women in underdeveloped area of Amphoe Ban Fang, Khon-Kaen is iron deficiency. Although the prevalence of anemia among the subjects is rather high, only 4.8% have anemia caused by iron deficiency.

Since the prevalence of iron deficiency anemia among the study population is much lower than the estimate prevalence which was used to calculate the sample size of this study, therefore the sample size of this study is not big enough to determine the real prevalence of iron deficiency anemia among the target population. However, from the results of this study we can see the tendency that at present time, the prevalence of iron deficiency anemia among reproductive age group non pregnant women is not as high as what we use to believe.

The percentage of the population who have hematocrit lower than 36% is 23.1. Even though the sample size of this study is not big enough to determine the prevalence of iron deficiency anemia, it is big enough to determine the prevalence of anemia among this group of population. If we consider those who have serum ferritin less than 25 ng/ml as iron deficient subjects, thus the prevalence of iron deficiency in this study is 21.5%. However, among those who have iron deficiency only 36.3% of them have anemia by criterion of hematocrit less than 36%

When we compared the results of this study with the results of study done by Sirijerachai, et al. in 1988, we found that even though this survey was done five years later than the Sirijerachai's study, the prevalence of anemia among this group of population is not so much decreased. (23.1% & 26.4%)

Despite the changing of socio-economic status of the country, standard of living, life style of the people and the attempt to improve health status of the population by the Ministry of Public Health, the prevalence of anemia among this group of population is almost the same.

The results of this study about prevalence of iron deficiency anemia and iron status can be generalized for the reproductive age group non pregnant women who live in the underdeveloped village of the area which has similar characteristics with Ban Fang. Since Ban Fang is only about 22 kilometers away from the city, therefore although the villages was classified as the underdeveloped villages by the same criteria as the other villages all over the country, there are something that is difference from the villages located in the mountain or National Park. First, even though the Ban Fang's people are poor, they can earn money easier than the people who live in the village which is far away from town. Second, Ban Fang's people exposed to more modern life style, eating habits in some families were modified. Third, in the season when food was difficult to find, Banfang's people can go to Khon Kaen's market and buy some food easily.

If we survey in the very poor area like the southern part of Northeastern Thailand such as Si-Sa-Ket province, the prevalence of iron deficiency anemia may higher. However, the last survey about iron deficiency in that area by Survanik, et al. was performed in 1981, thirteen years ago. In that study they did not mention the prevalence of iron deficiency anemia. Since we know that not all iron deficient subjects have anemia by the standard criterion and not all anemic

subjects caused by iron deficiency, therefore in the area where thalassemia and hemoglobinopathies is prevalence like Northeastern Thailand, the results of this study helps us to see the picture of anemic problem in this area more clearly.

When we look at the data about iron status of the subjects we found that 10.2% of the subjects have increased iron storage or iron over load. Since iron over load is common among Thalassemic patients , therefore the data suggests that thalassemia and hemoglobinopathies may take responsibility of high prevalence of anemia among this group of population.

This study shows that even though the prevalence of iron deficiency is still high, Iron fortification for general population is not a suitable method to solve this problem because it may cause harmful effect among those who already have iron overload.

About the age distribution of the subjects, it is not really represent the true picture of the study population, since there is very high percentage of the young girls moved from the villages to the big city and stay there for a long time. Usually they will come back only a few days on the new year or Songkran festival. After they get married, they will stay at home or migrate for work with their husband. Most of them come back to stay home permanently after have a child or getting old.

The data about number of sanitary pad used is rather difficult to get. Since some of them use a piece of cloth instead of sanitary pads. We assume the number of sanitary pad used by the frequency of the cloth changing. From the results of this study only analgesic used and using injected contraceptive hormone have significance effects on iron deficiency anemia. Regularly used of aspirin or NSAID increased the risk of iron deficiency. The aspirin or NSAID used has strongest influence, P-value 0.0015 (Table:14). The injected

contraceptive hormone seems to have protective effect, no subjects who use this method for birth control have iron deficiency anemia. This can be explained by fewer blood loss from menstruation among those who receive injected contraceptive hormone.

The habits of eating white clay have been changed, nowadays the popularity is decreasing. Only some of the older people eat it regularly but the frequency and amount eating is low. We found no statistical significant between the difference of prevalence of iron deficiency anemia among the clay eater and non clay-eater, the P-value is 0.1936. However the data was shown that among the clay-eater group the prevalence of iron deficiency anemia is higher than the non-clay-eater group (7.14% & 4.26%). Because this study is a cross-sectional study and the sample size is too small, we can not conclude that eating clay do not have effects on prevalence of iron deficiency anemia.

The history of gastro-intestinal hemorrhage and hemorrhoid are also have the same results as eating clay habits. There is the difference of prevalence of iron deficiency anemia between the two groups (7.95% among GI bleeding group and 4.25% among no GI bleeding group), but no statistical significant (P-value =0.1109). The reason for this results is the same as what we use to explain the results of eating-clay habits.

The subjects who have a child younger than 2 years seems to have lower chance of iron deficiency anemia. The prevalence of iron deficiency anemia among this group is 1.85% compare to 4.86% among the subject who have a child older than 2 years. Although there is no statistical significant (P-value = 0.1660), it was shown the tendency that age of the youngest child may have effects on prevalence of iron deficiency anemia. We can explain this results. Since

it is the standard practice to give iron supplementation to every pregnant women, therefore iron storage among the group which have young child is higher.

The migration do not have any effect on prevalence of iron deficiency anemia (p value = 0.8250). Since most of the subjects used to migrate at least once in their life, therefore the eating habits did not different between the two groups.

The infestation rate of hook worm is quite low. Only 1.6% were infested by hook worm. All of them have mild infestation rate (egg count < 2,000/g-faeces.). Since the number of infested case is very low, we can not find the significant relationship between hook worm infestation and prevalence of iron deficiency anemia in this study (p -value = 0.2507).

The parasitic infestation rate among the subjects is low because Banfang Hospital had the policy to examine stool for parasite of every resident of Amphur Banfang once a year. The positive cases were provided antiparasitic drugs in very low price or for free. This is part of project for get rid of liver fluke in the northeastern area of the Ministry of Public Health. This project has been continue in this area for over three years.

The study was design as descriptive cross-sectional study which is suitable for answering primary research question about the prevalence of iron deficiency anemia . But it is not the ideal study design for the secondary research question about associating factors of iron deficiency anemia . However the data obtained from this study can be used as basic data for further study using case control or cohort study.

In conclusion, since the number of iron deficiency anemic cases in this study is not as much as expected, therefore many variables can not reach statistical significant. However, history of analgesic used and using injected

contraceptive hormone for birth control do have effects of risk to have iron deficiency anemia. This can be used for screening for iron deficiency anemia among female reproductive age group especially in the area where thalassemia and hemoglobinopathies are not prevalence.

CONCLUSIONS

1. The prevalence of iron deficiency anemia among female reproductive age group non pregnant women is not as high as expected.
2. The prevalence of anemia among this group of population is still high almost the same as the result from the survey five years ago.
3. There is high prevalence of iron overload among this group of population , which may be due to thalassemia or hemoglobinopathies
4. Thalassemia both heterozygote, homozygote, and compound heterozygote form may be the major cause of anemia among this group of population.
5. The prevalence of iron deficiency among this group of population is still high, although it is not severe enough to cause anemia
6. The factor associated with iron deficiency anemia among this group of population identified from this study is the history of aspirin or NSAID intake. Blood loss from menstruation and gastro-intestinal tract bleeding have tendency to associate but can not reach statistical significant

RECOMMENDATIONS

1. Iron fortification of any form to solve the problem of iron deficiency among the general population should be avoid. Because it may have harmful effect among those who have iron overload from thalassemia or hemoglobinopathies.

2. The systematical survey about thalassemia and hemoglobinopathies including iron status of general population should be done to make the picture of anemic problem among Northeastern Thai population more clear.

3. Anemic patients should be carefully examined to identify the causation of anemia before the treatment started . Since most of specific laboratories for measuring iron status of the patients including serum ferritin are costly and not available in community hospital . Therefore , therapeutic trial of iron deficiency anemia is still useful in the suspected cases who had no evidence of thalassemia . But it should be carefully used and the duration of trial should no longer than 2 weeks. If there is no response the trial should be stopped. The patient should be refered to center hospital for furthe rinvestigation and management .

4. The case-control study of associated factors of iron deficiency anemia should be done to identified the people at risk .

5. The anemic patients with iron over load should be examined and identified whether thay are thalassemia or not .,