STUDY OF THE EFFECT OF IRON DEFICIENCY ANAEMIA ON THE RATIO OF BIRTH WEIGHT TO PLACENTAL WEIGHT AND MATERNAL HUMAN PLACENTAL LACTOGEN CONCENTRATION

Thesis

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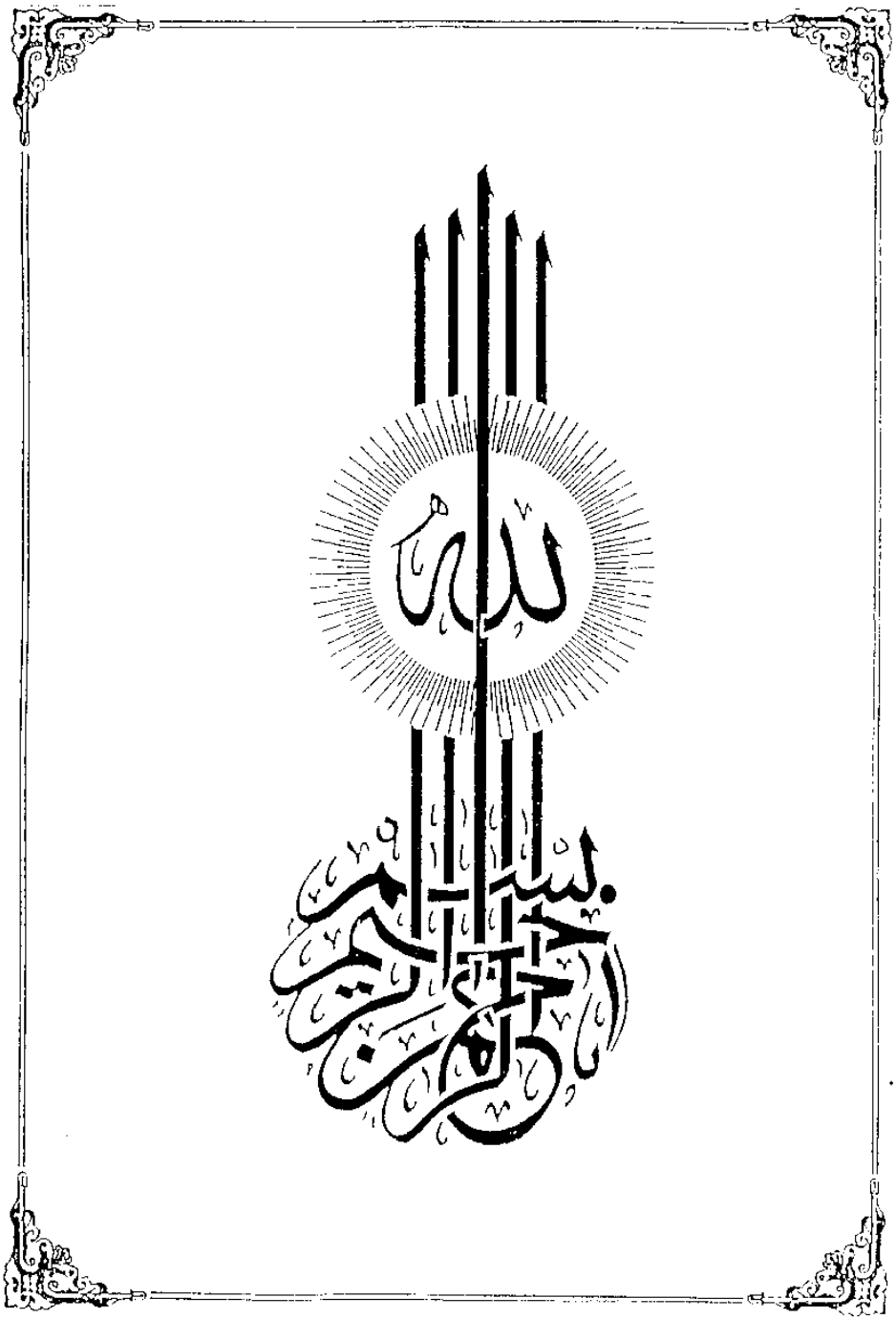

بسم الله الرحمن الرحيم

قالوا سبحانك لا علم لنا إلا ما علمتنا
إنك أنت العليم الحكيم
صدق الله العظيم

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Introduction

Definition of anaemia is decrease circulating Hb below normal level at any gestational age 11.0 g/dl *(World health Organization, 1968)*, but the commonly used clinical definition of 10.0 g/dl *(Beischer et al., 1970)*.

Iron deficiency anaemia is the most common cause of anaemia in pregnancy. Oral iron intake may be inadequate to maintain iron stores as a result of menstrual blood loss during reproductive life. Pregnancy will exacerbate the loss of iron stores because of increased maternal blood production and fetal growth need. Pregnancy costs the women about 1220 mg of elemental iron (500 for RBCs expansion, 300 for fetus-placenta, 190 for basal loss, 230 for delivery loss), that is balanced by maternal gain of 760 mg (490 from diet, 270 returned to storage after delivery), leving a deficit of 460 mg that is borrowed from maternal supplementation *(Levin, 1982)*.

The intrauterine environment greatly influences fetal growth and the large placental size which is found associated with severe anaemia *(Godfrey et al., 1991)*.

Aim of the Work:

The aim of this work is studying of the effect of iron deficiency anaemia on the ratio of birth weight to placental weight and maternal human placental lactogen concentration.

Nutrion and outcome of pregnancy

There are two aspect to be considered, first, the importance of long term nutrition and reproductive performance and secondly the impact of acute changes during the course of pregnancy, in the following period to second world war. The nutrional was improved and this lead to the rate of perinatal mortality was fall. Poor weight gain and poor fetal growth are both parts of a poor general response to pregnancy. Poor weight gain particularly in the second trimester of pregnancy, may be used as a predictor of poor fetal growth in antenatal care acute changes in nutrition, such as occur during famine lead mainly to a massive fall in conception rates due to amenorrhea in women and a zospermia in men *(Weatherall et al., 1996)*.

In those women who do become pregnant the fetuses grow reosnably well, although there is a deficient in fetal weight mainly due to loss of subcutaneous fat. This was exemplified by the dutch famine in 1940 to 1945 when there was acute deprivation in a previously well nourshed community with diatery intake dropping to a mean level of less than 1000 K/Cal/day. there was a significant decrease in birth weight of about 350 g or 9 percent of prefamine average birth weight, and a smaller change in birth,

length and head circumference to 5 and 7 percent respectively *(Durnin, 1987).*

In the prefamine levels these effects were seen when the famine coincided with the third trimester of pregnancy. Babies concieved during this period of famine and babies whose mothers were exposed to famine conditions only in the early pregnancy with adequate nutrition later showed no deficit in fetal growth. The impact of the famine on perinatal mortality was slight and subsequent follow-up of the offspring to adulthood has faild to show any adverse effect on physical or mental development.

This is in contrast to finding the communities that are chronically malnourished much of the work from national institute of nutrition in hyderobad India, suggest that women belong to low socioeconomic groups have very poor diatery intake through their lives and during pregnancy. In these situations the outcome of pregnancy is frequentely unfavourable and birth weight are low.

The impact of famine or acute starvation in such population is likely to have a devastating effect on reproductive performance *(Campbell, 1983),* the mothers are taller, healthy, better educated and better nourished and reproductive per formance, an indicator

of nutritional status throughout life, in particular during periods of childhood and adolescence, have improved. Taller women are known to have better outcome in pregnancy than shorter women *(Hemminke and Starfield, 1978).*

As result of epidemiological studies it has been suggested by Barker et al. (1992) that uterine environmental factor in particular poor nutrition, not only influence the relationship between placental weight and birth weight but continue to exert influence into adult life, making individual more susceptable to the development of cardio vascular disease alternatively there could be a common genetic mechanism. The role of maternal nutrition during pregnancy in this interesting hypothesis remains to be elucidated.

The most studies found no correlation between maternal diet and pregnancy outcome except in only two situations:

a) Women with low pregnancy weight,
b) Women with gestational under neutrition *(Rosso, 1990).*

In the remaining pregnant women who will reach or even exceed a critical body mass near term, no correlation should be expected in the case of famine or

under conditions of frankly intractable poverty, there may be a more direct relationship between maternal intake and birth weight *(Scholl et al., 1991)*, prenatal diet affects maternal weight and birth weight most in women who starving or acutely hungry *(Allan et al., 1994)*.