STUDY OF SOME RISK FACTORS OF FETOMATERNAL HEMORRHAGE

Thesis
Submitted in partial fulfilment for
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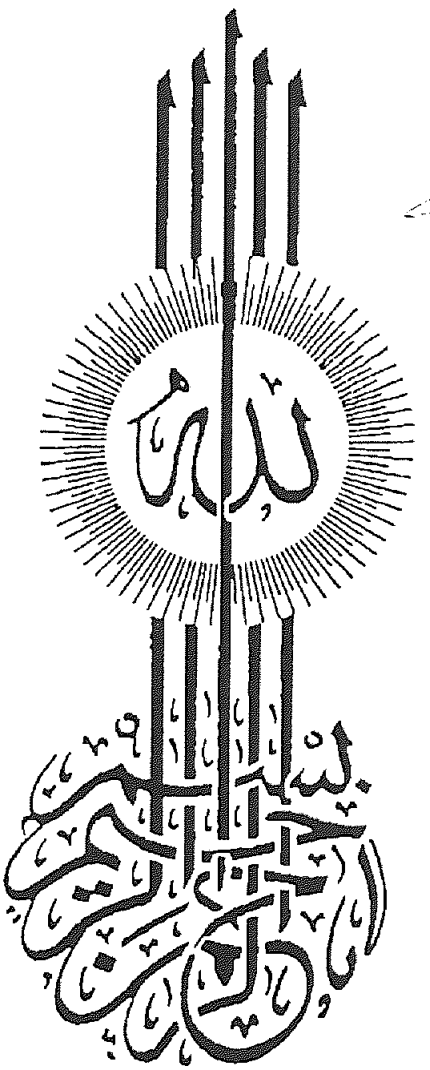
By
Azza Mohamed Abdel Raheem
M.B.B.Ch.

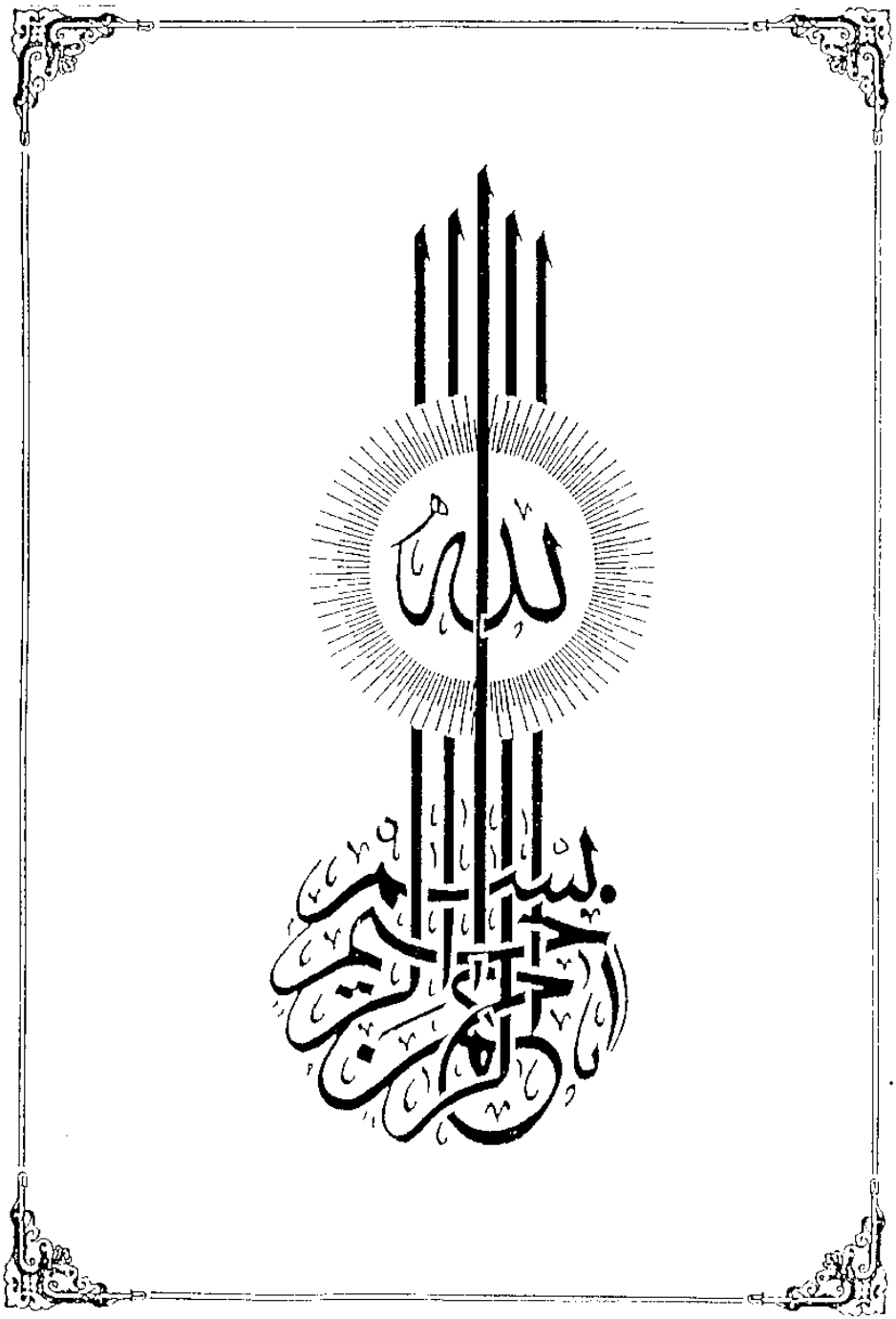
Supervised by
Prof. Dr.
Mohamed Nagy El-Makhzangy
Professor of Obstetrics and Gynecology
Faculty of Medicine, Ain Shams University

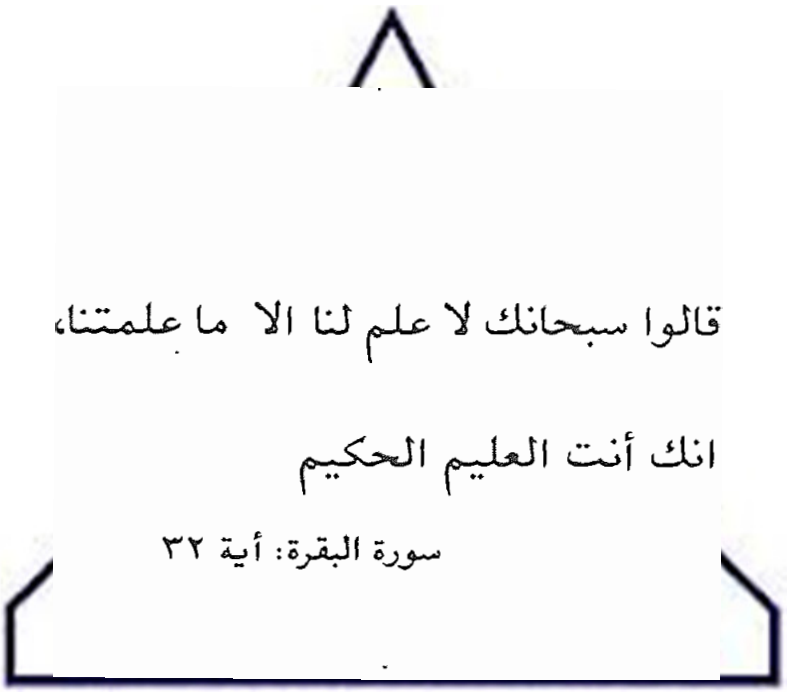
Dr.
Sherif El-Ghetany
Assist. Professor of Obstetrics and Gynecology
Faculty of Medicine, Ain Shams University

Dr.
Nashwa Ahmed Adel El-Badawi
Lecturer of Clinical Pathology
Faculty of Medicine, Ain Shams University

Faculty of Medicine
Ain Shams University
1993







قالوا سبحانك لا علم لنا الا ما علمتنا،

انك أنت العليم الحكيم

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Azza Mohamed Abdel Raheem

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INTRODUCTION

Since Weiner assumed in 1948 that the fetus may sometimes bleed into his mother's circulation and since Chown proved in 1954 that severe feto-maternal transfusions do, in fact, occur, several cases of perinatal mortality and morbidity due to this cause have been described **[Renaer et al., [1976]**.

Massive feto-maternal hemorrhage (FMH) has been regarded as an uncommon cause of perinatal morbidity and mortality. Most cases, if diagnosed, have not been detected until after delivery and usually only because the mother is being screened for Rhesus anti-D prophylaxis, **[Fay, 1983]**.

Feto maternal hemorrhage has been reported to occur in patients with various obstetric complications, but may also occur without a recognizable antecedent event.

Nevertheless the exact pathophysiology of this disorder remains obscure, **[Owen et al., 1989]**.

There are two main reasons why the recognition of these macro-transfusion (a FMH = 10ml) during the postpartum is important'; on the one hand, the question arises in a Rh-negative mother who

has given birth to an Rh-positive baby, whether a dose of 250 or 300 micrograms of anti-D gamma globulins will suffice to protect her against anti-D immunization. On the other hand, if the macro transfusion exceeds 50ml of blood, this transfusion may have caused a dangerous reduction of the blood volume of the fetus.

If the blood transfused to the mother is derived from fetal blood contained in an isolated placenta after the birth of the fetus this transfusions is of no importance to the fetus; if, however, such a macrotransfusion occurs during labor or during pregnancy it may be life-threatening to the fetus or to the neonate, **[Renaer et al., 1976]**.

The cause of massive FMH in most reported cases has been unexplained. Some specific risk factors include placenta previa, abruptio placentae and mode of delivery, **[Cynthia and Charles, 1988]**.

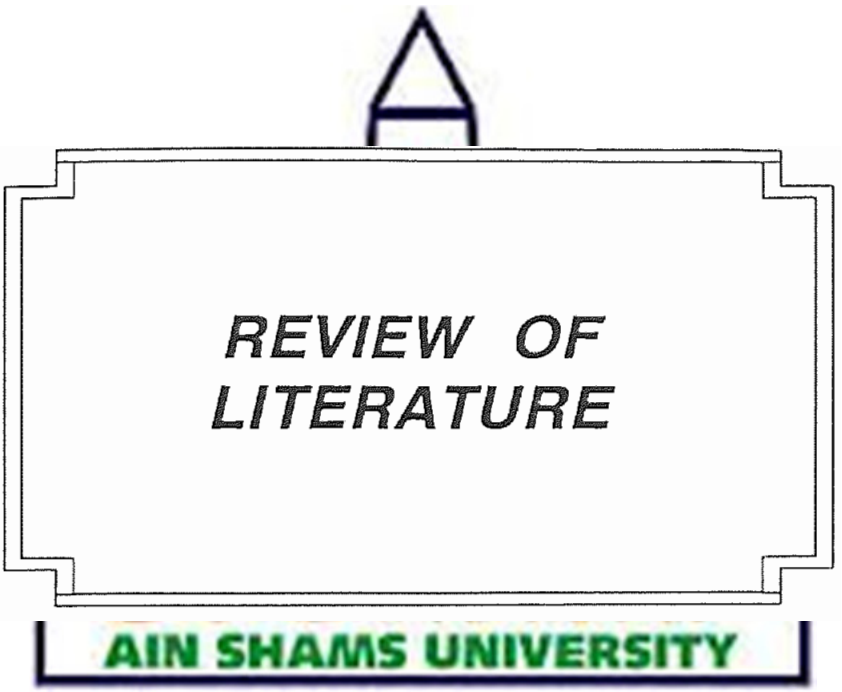
Michin and Bhoyroo, [1970] suggested the use of a Kleihauer test as a prognostic guide in patients with placental abruption or antepartum hemorrhage, a FMH 0.5ml indicating an increased risk of perinatal mortality and morbidity. But they were unable to confirm that antepartum hemorrhage is a predisposing factors, **[Li et al., 1988]**.

The incidence of FMH is nil in normal spontaneous delivery without syntocinon drip but the incidence of FMH in normal

delivery preceded by syntocinon drip is 19.05% **[Banerjee and Banerjee, 1989]**.

AIM OF THE WORK

To elucidate the possible physiologic and pathophysiologic factors affecting the transfer of fetal blood into the maternal circulation; as well as to find out the clinical value of implementing Kleihauer-Betke test in routine obstetric practice.



Historical Review of Feto-maternal Hemorrhage

In 1941 Levine et al. postulated that Rh-sensitization in Rh-negative women result from the passage of Rh-positive fetal erythrocytes across the placenta into the maternal circulation, **[Zipursky et al., 1963]**.

Also Weiner proposed, in 1948, that, the transplacental Hemorrhage of fetal Rh-positive red blood cells into the circulation of the Rh-negative mother was the cause of Rh isoimmunization

Support for these hypotheses came when **Chown [1954]** reported a case of fetal bleeding into the maternal circulation; subsequently, other cases were reported in which transplacental passage of red blood cells was following by the development Rh antibodies in the mother **[Gunson 1957]**.

Creger and Streele [1957] used a differential agglutination technique to show that the inagglutinable cell counts of newly delivered mothers of- group -O babies are often raised [zipursky et al., 1963].

Using an immunological technique, **Hosoi [1958]** found small numbers of fetal red cells in the blood of eighteen of forty - seven

newly delivered mothers, [Zipursky et al., 1963].

In 1959, Zipursky et al., using the acid elution technique, found from 0.1 to 3.0ml of fetal red cells in 21% of postpartum women, and **Fins et al., [1961]** and **Taylor and Kullman [1961]** have recorded similar findings, **[Zipursky et al., 1963]**.

Cohen et al., [1964] reported that the intermitted entry of fetal erythrocytes into the maternal blood in small quantities was found to be a physiologic event and he found that the postpartum fetal erythrocytes were demonstrated in 50 percent of the mothers and in approximately ten percent of the series, large fetal losses estimated to range from 0.5 to 10ml were observed. He also detected massive transplacental hemorrhage in nearly 1per cent of the cases by examination of the maternal blood and usually but not always by overt anemia in the fetus.

A transplacental hemorrhage of o.25ml is considered by the Liverpool workers to place the patient in the "high risk" group and is the indication for the administration of gamma-globulin, **[Woodrow et al., 1965]**.

Pilkington and Walker [1966] studied the frequency and quantity of feto-maternal bleeding in normal pregnancies and in a vari-