DELAY IN THE FETAL HEMOGLOBIN SWITCH IN THE INFANTS OF DIABETIC MOTHERS

Thesis

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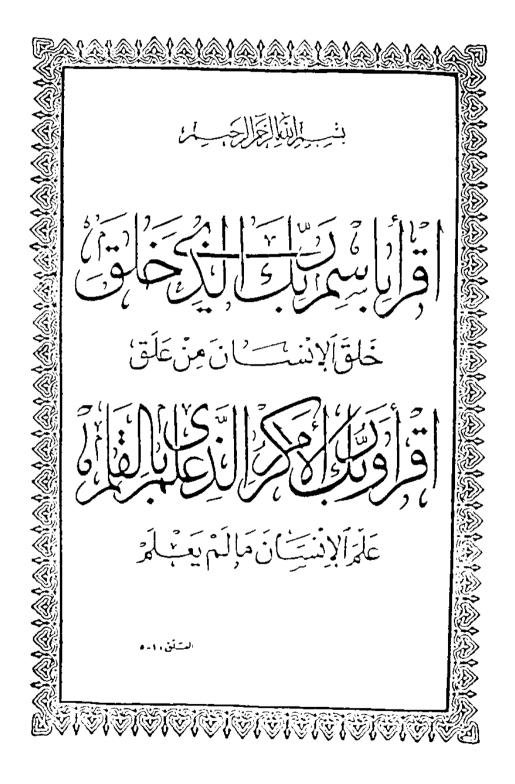
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LIST OF ABBREVIATIONS

1-	£	And.
2-	∝	Alpha chain.
3 –	В	Beta chain.
4 -	8	Gamma chain.
5-	€	epsilon chain.
6-	нвг	Fetal hemoglobin.
7-	нва	Adult hemoglobin.
8 -	L/S	Lecithin/syphingomyelin ratio.
9 –	IDMS	Infant of diabetic mothers.
10-	%	Percent.
11-	8	delta chain.
12-	3	Zeta chain.
13-	JCMZ	Juvenile chronic myeloid leukemia.
14-	нргн	Hereditary persistence of fetal hemoglobin.
15-	NICU	Neonatal intensive care unit.
16-	HPLC	High performance liquid chromatography.
17-	RDS	Respiratory distress syndrome.

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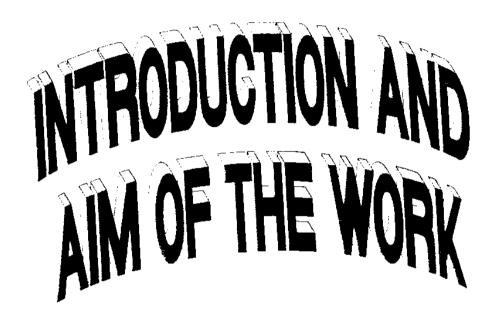
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INTRODUCTION

Between 28 and 34 weeks of gestation a switch in non-alpha-globin production from predominantly gamma-globin to beta-globin begins and hemoglobin F (alpha₂ gamma₂) is largely replaced by hemoglobin A (Alpha₂ beta₂) (Bard et al., 1970).

This phenomenon ordinarily proceeds on apparently set developmental clock and it is not affected by the gestational age at birth or the anatomic site of blood production (Bard and Prosmanne, 1982, Wood and Weatherall, 1983).

It occurs despite the disastrous consequences that result when abnormal or insufficient beta-globin is produced in patients with beta-chain hemoglobinopathies or beta-thalassemia (Ali, 1970).

There are populations of patients with beta abnormalities in whom a higher than normal level of hemoglobin F is manitained, and such patients have been observed to have milder clinical courses than their counter parts with normal levels of hemoglobin F (Perrine et al., 1981).

Introduction and aim of the work (1)

Recently, insulin has been shown to affect gene expression in a number of mammalian systems (Jones and Taylor, 1980, Clough et al., 1984).

Infants of diabetic mothers are exposed to intermittent or continuous maternal hyperglycemia and have elevated levels of glycosylated proteins and of glycosylated hemoglobin F (Elseweidy et al., 1984).

In addition, they have excessive glucose utilization and are usually hypoglycemic in the neonatal period and have pancreatic beta-Islet-cell hyperplasia. Consequently, they are widely considered to be hyperinsulinemic (Ballard, 1991).

perrine et al., (1985) found significant delay in the switch from gamma-globin to beta-globin in infants of diabetic mothers, They suggested that this finding might allow identification of physiologic factors that could modulate developmental gene suppression.

Introduction and aim of the work (2) ------

AIM OF THE WORK

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