

**Immunomodulatory effect of packed red blood cells
transfusion in premature neonates at different postnatal ages**

**Thesis
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التأثيرات المناعية المترتبة على نقل كرات الدم المكدسة في الأطفال المبتسرين
ناقصي النمو في مختلف الأعمار بعد الولادة

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DEDICATION

This work is dedicated to

-The soul of my father, you were the source of love and care for me; I wish you were with me.

-My mother for her unlimited support that always pushes me forwards.

-My beloved wife who gave me spirit and courage to proceed in this work.

-My sisters for their support.

-My daughter who lightened my life.

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Abstract

Objectives:

The aim of the study is to detect the increase in proinflammatory cytokine (interleukin- 8) and marker of endothelial activation (soluble intercellular adhesion molecule- 1), as manifestation of transfusion-related immunomodulation in preterm neonates at different postnatal ages.

Method:

Fifty neonates with gestational age (GA) 28-32 were involved in this study and were divided into two groups, each group was twenty five. The first group received blood within 1-2 weeks after birth and the second group received blood within 3-4 weeks after birth. The blood sample was obtained before and four to six hours after transfusion and another sample was obtained from the blood bag. Each plasma sample was analyzed for interleukin- 8 (IL-8) and soluble intercellular adhesion molecule- 1 (sICAM-1).

Results:

In group 1 neonates the post-transfusion levels of IL-8 was higher than the pre-transfusion levels with no statistical significance yet there was a trend. In group 2 neonates the post-transfusion IL-8 levels was higher than the pre-transfusion levels and the difference was not statistically significant. In group 1 & 2

neonates, there was no statistical significance between the pre- and post-transfusion sICAM-1 levels. There was a positive correlation between the post-transfusion level of IL8 and its level in packed red blood cells (PRBCs) bags in both groups. This correlation was significant in group 2 and was not significant, but yet there was a trend in group 1. And there was a significant positive correlation between post-transfusion levels of IL-8 and sICAM-1 in group 1 neonates.

Conclusion:

It is not evident in our study that there is an immunomodulatory effect of PRBCs transfusion. The positive correlation between post-transfusion IL-8 level and its level in PRBCs denotes passive transmission from blood bag.

Key words:

TRIM, IL-8, sICAM-1, blood transfusion, cytokines, preterm.

Contents

	List of
Tables.....	I
	List of
Figures.....	IV
	List of
Abbreviations.....	VI
Introduction.....	IX
	Aim of the
Work.....	X
 Review of literature	
	Chapter One:
Prematurity.....	1
Chapter Two: Blood transfusion in neonates	
.....	19
Chapter Three: Interleukin-	
8.....	41

Chapter four: Soluble intercellular adhesion molecule- 1.....	45
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Material and methods.....	51
Results.....	62
Discussion.....	97
Summary.....	107
Conclusion and recommendations.....	110
References.....	111
Arabic summary	

List of Tables

No.	Table	Page
Table (1)	Transfusion Guidelines From The United State Recombinant Human Epo Trial (Shannon et al., 1995)	2
Table (2)	Canadian Paediatric Society Recommendations for Red Cell Transfusions (Canadian Paediatric Society, 2002)	2
Table (3)	Guidelines For PRBCs Transfusion Thresholds For Preterm Neonates (Murray and Roberts, 2004)	2
Table (4)	Guidelines to Reduce Neonatal Transfusions (Ohls, 2007)	2
Table (5)	Soluble sICAM-1 inducers and inhibitors	4
Table (6)	Demographic data of the two neonatal groups	6
Table (7)	Clinical data of the two neonatal groups during stay	6
Table (8)	Complications in the two neonatal groups	6
Table (9)	Mode of oxygenation in the two neonatal groups	6
Table (10)	Feeding patterns at the time of transfusion	6
Table (11)	Hemogram of the two neonatal groups	7
Table (12)	IL-8 and sICAM-1 level in PRBCs bags in group 1 neonates	7
Table (13)	Comparison of the pre- and post-transfusion levels of IL-8 in group 1 neonates	7
Table (14)	Comparison of pre- and post-transfusion levels of sICAM-1 in group 1 neonates	7

Table (15)	Correlation between age of PRBCs bags and levels of IL-8 & sICAM-1 in PRBCs bags of group 1 neonates		7
Table (16)	Correlation between IL-8 level in PRBCs bags and its post-transfusion level in group 1 neonates		7
Table (17)	Correlation between sICAM-1 level in PRBCs bags and its post-transfusion levels group 1 neonates		7
Table (18)	Correlation between pre-transfusion levels of IL-8 and sICAM-1 in group 1 neonates		7
Table (19)	Correlation between post-transfusion levels of IL-8 and sICAM-1 in group 1 neonates		7
Table (20)	Correlation between the post natal age and the pre- & post-transfusion levels of IL-8 and sICAM-1 in group 1 neonates		7
Table (21)	Correlation between the gestational age and the pre- & post-transfusion levels of IL-8 and sICAM-1 in group 1 neonates		7
Table (22)	Correlations between types of feeding and pre- & post-transfusion levels of IL-8 and sICAM-1		7
Table (23)	IL-8 and sICAM-1 levels in PRBCs bags in group 2 neonates		7
Table (24)	Comparison of the pre- and post-transfusion levels of IL-8 in group 2 neonates		7
Table (25)	Comparison of pre- and post-transfusion levels of sICAM-1 in group 2 neonates		8
Table (26)	Correlation between age of PRBCs bags and levels of IL-8 & sICAM-1 in PRBCs bags in group 2 neonates		8

Table (27)		Correlation between IL8 level in PRBCs bags and its post transfusion level in group 2 neonates	8
Table (28)		Correlation between sICAM-1 level in PRBCs bags and its post-transfusion level in group 2 neonate	8
Table (29)		Correlation between the pre-transfusion levels of IL-8 and sICAM-1 in group 2 neonates	8
Table (30)		Correlation between the post-transfusion levels of IL-8 and sICAM-1 in group 2 neonates	8
Table (31)		Correlation between the post natal age and the pre & post transfusion levels of IL-8 and sICAM-1 in group 2 neonates	8
Table (32)		Correlation between gestational age and the pre & post transfusion levels of IL-8 and sICAM-1 in group 2 neonates	8
Table (33)		Correlation between types of feeding and pre- and post-transfusion levels of IL-8 and sICAM-1	8
Table (34)		Comparison of the pre-transfusion level of IL-8 in the two neonatal groups	8
Table (35)		Comparison of the pre-transfusion level of sICAM-1 in the two neonatal groups	9
Table (36)		Comparison of the post-transfusion levels of IL-8 in the two neonatal groups	9
Table (37)		Comparison of the post-transfusion levels of sICAM-1 in the two the two neonatal groups	9
Table (38)		Mortality	9

Table (39)		Correlation between mortality and pre- and post-transfusion levels of IL-8 & sICAM-1 in all neonates	9
Table (40)		Correlation between mortality and IL-8 & sICAM-1 levels in PRBCs bags in all neonates	9
Table (41)		Correlation between neonatal morbidities and pre- & post-transfusion levels of both IL-8 & sICAM-1 in all neonates	9
Table (42)		Correlation between neonatal morbidities and PRBCs bag IL-8 & sICAM-1 levels in all neonates	9

List of Figures

No.	Figure	Pag
Figure (1)	Ribbon diagram illustrating the monomer 3-dimentional structure of IL-8	4
Figure (2)	Structure of ICAM-1 and sICAM-1	4
Figure (3)	Preparation of sICAM-1 standard dilutions	5
Figure (4)	sICAM-1 standard curve	5
Figure (5)	Human IL-8 standard curve	6
Figure (6)	Sex distribution of neonates in the two neonatal groups	6
Figure (7)	Mean GA of neonates in the two neonatal groups	6
Figure (8)	Mean postnatal age of neonates in the two neonatal groups	6
Figure (9)	Mean weight of neonates in the two neonatal groups	6
Figure (10)	Mode of oxygenation in the two neonatal groups	6
Figure (11)	Feeding patterns for both neonatal groups	6
Figure (12)	Platelet count in the two neonatal groups	7
Figure (13)	Pre- and post-transfusion levels for IL-8 in group 1 neonates (p = 0.06)	7
Figure (14)	Pre- and post-transfusion levels for sICAM-1 in group 1 neonates	7
Figure (15)	Correlation between post-transfusion levels of IL-8 and sICAM-1 in group 1 neonates, (p = 0.05)	7
Figure (16)	Pre and post transfusion levels of IL-8 in group 2 neonates	8
Figure (17)	Pre- and post-transfusion levels of sICAM-1 in group 2 neonates	8

Figure (18)	Correlation between IL8 level in PRBCs bags and its post transfusion level in group 2 neonates (p = 0.002)		8
Figure (19)	Correlation between gestational age and pre-transfusion IL-8 in group 2 neonates (p = 0.04)		8
Figure (20)	Correlation between gestational age and post-transfusion sICAM-1 in group 2 neonates (p = 0.05)		8
Figure (21)	Comparison of the pre-transfusion levels of IL-8 in the two neonatal groups		8
Figure (22)	Comparison of the pre-transfusion levels of sICAM-1 in the two neonatal groups		9
Figure (23)	Comparison of the post-transfusion levels of IL-8 in the two neonatal groups		9
Figure (24)	Comparison of the post-transfusion levels of sICAM-1 in the two neonatal groups		9
Figure (25)	Comparison of mortality rates between the neonatal groups		9
Figure (26)	Overall mortality rate		9
Figure (27)	Incidence of different neonatal morbidities in all neonates		9