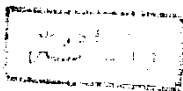


**VON WILLEBRAND FACTOR (FVIII:AG)  
IN PEDIATRIC RHEUMATIC DISEASES**

**THESIS**

Submitted in partial fulfilment of the  
M.D. Degree in Pediatrics



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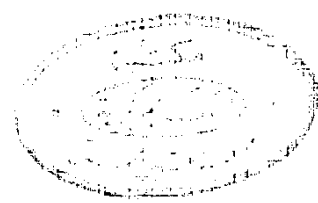
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## CONTENTS

	Page
<b>Abbreviations</b>	<b>ii</b>
<b>List of Tables</b>	<b>iv</b>
<b>List of Figures</b>	<b>vi</b>
<b>Introduction and Aim of the Work</b>	<b>viii</b>
<b>Review of Literature</b>	
Rheumatic Diseases	1
Rheumatic Fever	3
Systemic Lupus Erythematosus	15
Rheumatoid Arthritis	26
Mixed Connective Tissue Disease	33
Leukocytoclastic (hypersensitivity or allergic) vasculitis	36
Henoch-Schönlein Purpura	40
Hemostasis	44
Factor VIII/von Willebrand Protein Complex	47
Factor VIII Procoagulant Protein	50
von Willebrand Factor	54
Hemostatic Disorders Associated with Collagen Vascular Diseases	72
Acute Phase Response	79
Erythrocyte Sedimentation Rate	81
Blood Viscosity	85
Acute Phase Proteins	91
C-Reactive Protein	95
<b>Patients and Methods</b>	<b>106</b>
<b>Results</b>	<b>118</b>
<b>Discussion</b>	<b>169</b>
<b>Summary</b>	<b>188</b>
<b>Conclusion and Recommendations</b>	<b>191</b>
<b>References</b>	<b>193</b>
<b>Arabic Summary</b>	

## ABBREVIATIONS

ACL	Anticardiolipin antibody
ANA	Antinuclear antibody
Anti-Sm antibody	Anti-smooth muscle antibody
APL	Antiphospholipid
cDNA	Complementary deoxyribonucleic acid
CRP	C-reactive protein
DIC	Disseminated intravascular coagulopathy
ds DNS	Double stranded deoxyribonucleic acid
ESR	Erythrocyte sedimentation rate
FVIII:c	Factor VIII procoagulant activity
FVIIIIR:Ag	Factor VIII related antigen
GP	Glycoprotein
Hb	Hemoglobin
HSP	Henoch Schönlein purpura
IL	Interleukin
JRA	Juvenile rheumatoid arthritis
Kb	Kilobase
KDa	Kilodalton
LA	Lupus anticoagulant
LE cells	Lupus erytheromatosus cells
MCTD	Mixed connective tissue disease
Mr	Molecular mass
mRNA	Messenger ribo-nucleic acid

OD	Optical density
PAN	Polyarteritis nodosa
PV	Plasma viscosity
RA	Rheumatoid arthritis
RER	Rough endoplasmic reticulum
RNP	Ribonucleoprotein
SDS	Sodium dodecyl sulfate
SLE	Systemic lupus erythematosus
TNC	Tumor necrosis factor
VDRL	Venereal disease research laboratory
VLDL	Very low density lipoprotein
vWD	von Willebrand disease
vWF	von Willebrand factor

## LIST OF TABLES

	<b>Page</b>
Table (1): Classification of rheumatic diseases.	2
Table (2): 1982 revised criteria for diagnosis of systemic lupus erythematosus.	18
Table (3): The revised criteria for diagnosis of rheumatoid arthritis.	27
Table (4): Classification of vasculitis in childhood.	36
Table (5): Conditions affecting the C-reactive protein.	99
Table (6): Clinical and laboratory data of patients with active acute rheumatic fever (group Ia).	133
Table (7): Follow up data of patients with rheumatic fever after 1 month of therapy (group Ib).	134
Table (8): Clinical and laboratory data of patients with collagen vascular diseases (group IIa).	135
Table (9): Follow up data of patients with collagen vascular diseases after 1 month of therapy (group IIb).	136
Table (10): Laboratory data of the control group III.	137
Table (11): Mean laboratory values and comparisons for all patients (group I, II).	138
Table (12): Mean laboratory values, correlations and comparisons for patients (group I).	139

	<b>Page</b>
Table (13): Mean laboratory values, correlations and comparisons for group II.	140
Table (14): Mean laboratory values, correlations and comparisons for collagen group (SLE + RA + MCTD).	141
Table (15): Mean laboratory values, correlations and comparisons for patients with active SLE.	142
Table (16): Mean laboratory values, correlations and comparisons for patients with HSP.	142
Table (17): Correlations between different laboratory parameters for the control group.	143



## LIST OF FIGURES

	<b>Page</b>
Fig. (1): Formation and action of thrombin.	45
Fig. (2): Binding domains on the vWF molecule.	56
Fig. (3): Standard curve for CRP assay by ELISA.	112
Fig. (4): Standard curve for FVIII related antigen assay by ELISA.	117
Fig. (5): Erythrocyte sedimentation rate for patients with acute rheumatic fever before and after treatment.	143
Fig. (6): C-reactive protein for patients with acute rheumatic fever, before and after treatment.	144
Fig. (7): FVIII related Ag for patients with acute rheumatic fever, before and after treatment.	145
Fig. (8): Correlation between platelet count and CRP in rheumatic fever.	146
Fig. (9): Correlation between ESR and CRP in rheumatic fever.	147
Fig. (10): Erythrocyte sedimentation rate for collagen group II before and after treatment.	148
Fig. (11): Serum C-reactive protein in collagen group II before and after treatment.	149
Fig. (12): Plasma FVIII related antigen in collagen group II, before and after treatment.	150
Fig. (13): Erythrocyte sedimentation rates for all patients.	151
Fig. (14): Serum C-reactive protein values for all patients.	152
Fig. (15): Plasma FVIIIIR:Ag values for all patients.	153
Fig. (16): Correlation between ESR and CRP in all patients with active disease.	154
Fig. (17): Correlation between ESR and FVIIIIR:Ag in all patients with active disease.	155

	<b>Page</b>
Fig. (18): Correlation between CRP and FVIIIIR:Ag in all patients with active disease.	156
Fig. (19): Correlation between VIIIIR:Ag and FVIIIIR:Rc in all patients with active disease.	157
Fig. (20): Correlation between FVIIIIR:Ag and FVIIIIR:Rc in collagen group (SLE + RA + MCTD).	158
Fig. (21): a. Gangrene of toes, patient No. 1 group II. b. Skin biopsy of patient No. 1 group II.	159
Fig. (22): Serial laboratory values and disease course for patient No. 1, group II, with SLE.	160
Fig. (23): Serial laboratory values and disease course for patient No. 2, group II with SLE.	161
Fig. (24): Photograph for patient No. 2 group II. a. Butterfly skin rash. b. Nail dystrophy, livedo reticularis.	162
Fig. (25): Maculopapular skin rash, patient No. 4 group II. a. Face. b. Arms c. Legs.	163
Fig. (26): Skin biopsy for patient No. 4 group II.	164
Fig. (27): Correlation between FVIIIIR:Ag and ESR in active SLE group.	165
Fig. (28): Photography for patient No. 10 with MCTD. a. Face. b. Hand.	166
Fig. (29): Rheumatoid arthritis patient No. 12. a. Photograph of the hands. b. X-ray of the hands.	167
Fig. (30): Henoch-Schönlein vasculitis.	168

# **INTRODUCTION AND AIM OF THE WORK**

## **von Willebrand Factor (F VIII:R Ag) in Pediatric Rheumatic Diseases**

### **Introduction**

von Willebrand factor, also known as Factor VIII related Ag, is a multimeric glycoprotein which is an essential component in the clotting process. It is manufactured in the endothelial cells and megakaryocytes, and measurable amounts can be found in endothelial cells, platelets, and circulating in the plasma (*Girma et al.*, 1987).

Recently, abnormally high plasma levels of factor VIII:R Ag have been identified in patients with many rheumatic diseases of childhood including systemic juvenile arthritis, SLE, juvenile dermatomyositis and systemic vasculitis. The elevated levels of this protein are most likely a reflection of the existence of ongoing vascular damage due to active vasculitis (*Nusinow et al.*, 1984).

According to *Bowyer et al.* (1989), the elevated plasma levels of this factor in pediatric rheumatic disease has no correlation with the levels of ESR, C reactive protein or fibrinogen, suggesting that it is a more sensitive indicator of active systemic vasculitis than the other acute phase reactants.

It has been suggested that measurements of F VIII:R Ag in childhood rheumatic patients may be of great value in assessing the severity of systemic vascular involvement, in monitoring disease activity as well as an important prognostic factor (*James et al.*, 1990).

#### **Aim of the Work**

The aim of the present study is to determine the plasma level of von Willebrand factor in rheumatic diseases in pediatrics and to evaluate its significance as a marker of disease activity and as a prognostic factor.

# **REVIEW OF LITERATURE**

## **RHEUMATIC DISEASES**

The rheumatic diseases, inflammatory diseases of connective tissues or collagen diseases are disorders grouped together because of similarities in symptomatology and pathology. In general, they are associated with inflammatory changes in various connective tissues throughout the body, and extensive fibrinoid necrosis involving collagen. Many of the major rheumatologic disorders are autoimmune in nature. Deposition of immune complexes is an important feature of several of these diseases, and the immunoglobulin is believed to be an autoantibody (*Fye and Sack, 1991*).

Unknown factors in the environment act upon the immune system of patients who have inherited a predisposition to these diseases. Expression of disease is rarely seen in a familial pattern, although patients share common immunogenetic traits (*Hollister, 1991*).

The spectrum of rheumatic diseases in childhood are broad. Both arthralgia and true inflammatory synovitis may accompany any of the rheumatic diseases. A more significant common thread is the vascular disease, usually of inflammatory nature, found in all. Another common thread is the participation of immunologic mechanisms in their pathogenesis. Systemic lupus erythematosus (SLE), dermatomyositis, scleroderma and the vasculitides are not rare in children and constitute a significant segment of childhood disease (*Hanson, 1985*).