CELL CONTENT AND ALBUMIN CONCENTRATION IN NASAL SECRETION FROM PATIENTS WITH ALLERGIC RHINITIS WITH OR WITHOUT BRONCHIAL ASTHMA

Thesis.

Submitted in Partial Julfillment For The Master Degree of Internal Medicine.

> \mathcal{B} y Samira Kashif Mohamed

> > Supervised by

Prof. Dr. Foze Abbas El-Shayeb

Brof. of Internal Medicine and Allergy 52675

Anculty of Medicine

Ain Shams University

Dr. Abd El-Rahman Abd El-Hamid Soliman

Lecturer of Internal Medicine

Laculty of Medicine

Ain Shams University

Dr. Hassan Ahmed Wahba

Lecturer of Enr. Nose and Throat

Laculty of Medicine

Ain Shams University

Faculty of Medicine Ain Shams University

1995

07/c/V

CONTENTS

Contents	page
Aknowledgement.	1
Introduction and Aim of the work.	2
Review of literature.	
*Immunoglobuline system in nasal secretion	4
*Rhinitis.	6
*Allergic rhinitis.	13
*Pathologenesis of allergic rhinits.	16
*Diagnosis of allergic rhinitis.	25
*Treatment of allergic rhinitis.	48
Subjects and methods.	60
Results.	64
Discussion.	100
Summary & conclusion.	108
References.	111
Arabic Summary.	



LIST OF TABLES

ilalblia	lot: Egla
Table (1) : Age and sex distribution of the three studied groups to	66
Table (2): The percentage of males and females and the range and mean of their.	67
Table (3): The skin sensitivity test in group il (patients with allergic rhinitis) and group ill (patients with allergic rhinitis and bronchial asthma).	
Table (4) : Blood picture in group I (control group)	69
Table (5): Blood picture in group II. (patients with allergic Thinitis)	70
Table (6): Blood picture in group III (Patients with allergic , rhinitis and bronchial asthma)	71
Table (7): Cytological examination of the nasal secretion in group I (control group)	72
Table (8): Cytological examination of the nasal secretion in group II (patients with allergic rhinitis)	73
Table (9) : Gytological examination of the dasal secretion in group III (patients with allergic rhinitis and bronchial asthma)	
Table ((10)): Protien and albuming content in segum and riskal segum and riskal segum and riskal segum and riskal	75
Table (11): Protien and albumin content the serum and hasal secretion in group il (patients with allergic dunitis).	76

Travella	ara rojek
Table (12): Protien and albuming content in serum and rasal secretion in group III (Patients with allergic tribuils and bronchial asthma):	
Table (13) : Comparison between the mean values of total leucocytic count in the three studied groups.	78
Table (14): Comparison between the mean values of polymorph cell count in the three studied groups	79
Table (15) I Comparison between the mean values of lymphocyte cell count in the three studied groups	80
Table (16): Comparison between the mean values of Mortocyte cell count in the three studied groups.	81
Table (17): Comparison between the mean values of Eosinophil cell count in the three groups	83
Table (18): Comparison between the mean values of Basophili cell count in the three studied groups	84
Table (19) : Comparison between the mean values of Total leucocytic cell count in nasal secretion in the three studied groups	85
Table (20): Comparison between the mean values of Neutrophil sell count in nasal secretion in the three studied groups	87
Táble (21): (Semparisonlitetyaan beditezh valules of Eu niophil 2 - Call Countaionásal seorotionak the three strilles anorps	89
Table (22) : Comparison between the mean values of Basophili, cell count in nasal secretion in the three studied groups	91

î î î î î î î î î î î î î î î î î î î	e X= (0[= 5]
Table (28) q. Comparison perweent the mean values of Mononuclear, cells countries passes secretion in the three studied groups	
Table (24) : Comparison between the mean values of Total protein in nasal secretion in the three studied groups	95
Table (25) Gomparison petween the meanivalues of Albumin content in resal secretion in the three studied groups	97
Table (26): Comparison between the mean values of Albumin I protein ratio in nasal secretion in the three studied groups:	99

the second secon

LIST OF FIGURES

Figure:	િક્ષણ
Fig (1): Graph illustrating the mean values (/mm ³) of blood eosihophil cell count in the three studied groups	82
Fig (2): Graph illustrating the mean values (/mm ²) of Neutrophil cell count in nasal secretion in the three studied groups	86
Fig. (3) : Graph Illustrating the mean values (/mm ³) Of eosinophil cell count in nasal secretion in the three studied groups	88
Fig. (4): Graph illustrating the mean values (/mm ³) Of basophilicell count in nasal secretion in the three studied groups	90
Fig (5): Graph illustrating the mean values (/mm²) Of mononuclear cell count in nasal secretion in the three studied groups	92
Fig. (6): Graph illustrating the mean values (mg / dl) Of protein content in nasal secretion in the three studied groups	94
Fig. (7): Graph illustrating the mean values (mg / dl) Of albumin content in nasal secretion in the three studied groups	96
Fig. (8): Graph illustrating the mean values (%)Of albumin I protein ratio in nasal secretion in the three studied groups	98

ACKNOWLEDGMENT

I would like to express my heartfelt thanks to Prof. Dr. Foze Abbas, Professor of internal medicine and allergy, Ain Shams university, for her generous support and many useful criticisms and suggestions through this study and for her kind supervision through the course of this work.

I am very deeply indebted to Dr. Abd El-Rahman Soliman, lecturer of internal medicine, Ain Shams University for his guidance, continuous encouragement, most appreciable advice and excellent supervision which made this work possible.

I would like to thank Dr. Hassan Wahba lecturer of Ear, Nose and Throat,

Ain Shams University for his great help and encouragement he always

offered.

I wish to express my deepest gratitude to Dr. Manal Hashem, lecturer of clinical pathology, Ain Shams University for her great help and true assistance in fulfilling the practical part of this work.

Finaly many thanks to my father and my mother for their support and their help along the work.

INTRODUCTION AND AIM OF THE WORK

INTRODUCTION AND AIM OF THE WORK

Introduction:-

Allergic rhinitis is one of the most common disorder in medicine it is at best nuisance and at worst can be incapacitating. (*Juniper, et. al., 1993*). It is characterized by profuse rhinorrhoea, Paroxysm of sneezing, nasal obstruction and pruritus (*Meltzer, et. al., 1988*).

The nose has been introduced as an in vivo model to investigate allergic and non allergic disease. (*Knani*, et. al., 1992).

Inflammatory cells (mast cells, eosinophils, neutrophils and basophils) and their products (prostaglandin, leukotriens, platletactivating factor and histamine, contribute to this process. These mediators cause vasodilatation and increase in vascular permeability, increased glandular secretion and stimulation of afferent nerve which stimulate the sneezing center. (*Prat, et. al., 1993*).

Aim of the work:-

The objective of this study is to evaluate cell content and albumin concentration in nasal secretion from patient with allergic rhinitis with or without bronchial asthma.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

Immunoglobuline system in nasal secretion

Adequate surface protection depends on intimate cooperation between natural nonspecific defence mechanisms and acquired specific immunity mainly mediated by immunoglobuline.

Immunoglobuline A

ig A is a prominent protein of nasal secretion representing 20% to 50% of protein in nasal secretion, most of it can be characterized as secretory lg A (S Ig A). It has neutralizing effect on viruses and bacterial toxins, in addition, it inhibits adherence of micro-organisms to the epithelial surface. (Hanson & brandtzaeg 1980).

ig M:

Ig M is generally of little importance for immunological exclusion on respiratory surface, although rhinitis may slightly enhance its external translocation, also secretory Ig M (SIgM) may be an important compensatory carrier of protective antibodies in nasal secretion of some patients with selective Ig A deficiency. (*Brandtzaeg*, et. al., 1984).

Ig G:-

ig G is the simplest form of immunoglobulin. It reaches the nasal secretion by passive diffusion or leakage through minor break in mucosa during inflammation. (*Kaul T. N., et. al., 1982*).

Ig E:-

Ig $\ensuremath{\mathsf{E}}$ is the immunoglobulin of greatest importance in allergic nasal disease.

Ig E producing cells are mainly located in the respiratory mucosa and regional lymph nodes.

It has a special affinity for specific membrane receptors on basophils and mast cells, these cells contain up to 80,000 lg E receptors sites. When cell-bound lg E antibody is complexed with allergen, a series of intracellular reactions resulting in release of mediators as histamine, slow reacting substance, eosinophil, chemotactic factor and platelet activating factor. One molecule of lg E is not sufficient to produce mediators, at least two adjacent lg E molecule must be bridged. (Estelle & Simons 1984).

RHINITIS

Rhinitis is a very common disease affects a high percentage of population, defined as inflammation of lining of the nose, characterised by one or more of the following symptomes: nasal congestion, rhinorrhoea, sneezing and itching

Classification:-

1- Allergic rhinitis

- Seasonal.
- Perennial.

2- Infectious

- Acute.
- Chronic.

3- Others

- Idiopathic. (Vasomotor rhinitis).
- Non allergic rhinitis with eosinophilia.
- Occupational.
- Drug induced.
- Food.
- Emotional.
- · Atrophic.
- Hormonal.
- Nasal neoplasm rhinitis.
- nasal mastocytosis rhinitis. (Lund V. J., et. al., 1994).