

A STUDY OF IMMUNOGLOBULINS AND COMPLEMENTS (C₃ & C₄) IN ALOPECIA AREATA

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Estimation of serum immunoglobulins (IgG, IgM and IgA) and complements (C₃ and C₄) was carried out in 100 cases of alopecia areata as per method described by Mancini (1965).¹ Clinically patients were divided in two groups, alopecia areata circumscribed (group I) and severe alopecia areata (group II). Significant decrease in levels of one or more immunoglobulins were observed in most of the patients. However, serum complements (C₃ and C₄) were within range of normal control values.

Key Words : Alopecia areata, Immunoglobulins, Complements

Introduction

The aetiology of alopecia areata remains obscure. Presently it is thought to be a disease of auto-immune aetiology. After going through some of such reports present work was carried out to study the levels of immunoglobulins (IgG, IgM and IgA) and complements (C₃ and C₄) in patients of alopecia areata.

Materials and Methods

The study comprised of 100 cases of alopecia areata and 30 healthy controls of corresponding age and sex. On the basis of clinical observations patients were divided in two groups.

Group I: Alopecia areata circumscribed. Those having only few patches over scalp, face or body.

Group II: Severe alopecia areata. Those having multiple patches involving scalp, face and body for more than six months or multiple patches with ophiasis or cases of alopecia totalis and universalis.

Estimation of serum immunoglobulins (IgG, IgM and IgA) and serum complements (C₃ and C₄) were done by single radial

immunodiffusion technique as described by Mancini et al¹ by using tripartigen plates (Boehring India Ltd).

Results

Clinical observations revealed alopecia areata circumscribed (group I) in 75% and severe alopecia areata (group II) in 25% patients. The mean age of onset was 24 years with male: female ratio of 1.6:1. The duration of disease ranged from 1 week to 25 years.

On estimation of serum immunoglobulins in 100 patients, significant decrease in levels of IgG, IgM and IgA were observed in 64%, 46% and 42% patients respectively as compared to control levels. Out of 64% patients with decrease in levels of IgG, 19/25 were from severe alopecia areata group II and 45/75 were from alopecia areata circumscribed group I. Similarly out of 46% with decrease in levels of IgM, 16/25 were from group II and 30/75 were from group I. Among 42% patients with decrease in levels of IgA, 14/25 were from group II and 28/75 were from group I.

The levels of serum complements (C₃ and C₄) in all the 100 patients were within the normal range of control values.

Details of observations are shown in tables I to III.

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Table I. Clinical types of alopecia with decreased levels of IgG

Type of A.A.	No. of Cases	Patient's IgG (mg/dl)		Control's IgG (mg/dl)
		Range	Mean±SD	Mean±SD
Severe A.A.	19	628-1112	785±127***	1330±291
A.A. Circumscribed	45	673-1328	984±208***	1330±291
Total	64	628-1328	925±208***	1330±291

***p<0.001, **p<0.01, *p<0.05

Table II. Clinical types of alopecia with decreased levels of IgM

Type of A.A.	No. of Cases	Patient's IgM (mg/dl)		Control's IgM (mg/dl)
		Range	Mean±SD	Mean±SD
Severe A.A.	16	82-133	111±16***	149±35
A.A. Circumscribed	30	88-147	118±17***	149±35
Total	46	82-147	116±16***	149±35

***p<0.001, **p<0.01, *p<0.05

Table III. Clinical types of alopecia with decreased levels of IgA

Type of A.A.	No. of Cases	Patient's IgA (mg/dl)		Control's IgA (mg/dl)
		Range	Mean±SD	Mean±SD
Severe A.A.	14	107-156	127±13***	200±44
A.A. Circumscribed	28	113-196	153±25***	200±44
Total	42	107-196	145±25***	200±44

***p<0.001, **p<0.01, *p<0.05

Discussion

Present study revealed either one or more type of immunoglobulins were decreased in most of the patients. The decrease was more significant in severe alopecia areata group II. Almost similar observations are reported by Herzer et al² and Singla et al.³ In contrast Kern et al,⁴ Betterle et al⁵ and Young et al⁶ reported no changes in immunoglobulin levels in their patients.

Serum complements (C₃ and C₄) levels were found within normal range of control values. Similar observations are reported by Herzer et al² and Wolf et al.⁷

It is concluded from the present study that significant decrease in one or more immunoglobulins (IgG, IgM and IgA) in most of the patients indicated that humoral immunity was impaired. In patients under study, report about impairment of cellular immunity is already published.⁸ On the basis of these two reports we finally concluded that both cellular and humoral immunity were impaired in patients of alopecia areata.

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