

Relationship of Primary and Secondary Sexual Characters of Human Females with Blood Groups

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ABSTRACT 70 Human females of age groups 20-35 years belonging to different blood groups were associated in this investigation. In females of blood group 'B' primary sexual character i.e. age of menarche and length of menstrual cycle were found higher while length of menstrual flow period was found lower in comparison to other blood groups except blood group 'A' in which length of menstrual cycle was higher and flow period was lower. The percentage of hairs and acne (secondary sexual characters) were found less in females of blood group A than B, AB and O.

INTRODUCTION

Human red blood corpuscles contain a number of inheritable blood group antigens of which ABO and Rh systems are of major clinical significance. The growth and development of human females as well as males is the outcome of interaction of biological and environmental factors (Hiemaux, 1971). Balgir (1994) have reported about the relationship of blood group with the age at menarche. In case of women taking oral contraceptives higher incidence of thromboembolic disorders were reported more in blood groups A, B, and AB in comparison to women of blood group O (Lamba et al., 1974; Mourant et al., 1971 and Westerholm et al., 1971). Majupuria et al. (1966) have reported the relationship of A, B, O blood groups with breast cancer. Reddy et al. (1980) reported the A,B,O blood groups relation with carcinoma of the cervix in women. The role of androgen in hair growth in female has been discussed in detail by Hamilton (1942).

It has been earlier reported that psychological stress (Segre et al., 1964) and epinephrine (Segre et al., 1966) also influences hair growth in women. The androgen effects the secretion

of sebaceous gland whose over secretion is responsible for the development of acne. Hirsutism in females was reported by Hadley (1988).

Keeping the above idea it was planned to prepare a report on the relationship of blood groups with the development of primary and secondary sexual characters in human females.

MATERIALS AND METHODS

70 females volunteers of age group 20-35 years belonging to different blood groups were engaged in this investigation. According to the ABO blood grouping system they were divided into four groups A, B, AB and O. Clinical details are given in table 1.

Table 1: Details of female volunteers engaged

Age group (in years)	Blood group	Number
20-35	A	12
20-35	B	29
20-35	AB	9
20-35	O	20

Blood and related data were collected from different localities i.e. laboratories, college hostels, houses etc. from Patna.

Finger of women belonging to different blood groups was pricked with sterilized needle and one drop of unknown blood was transferred to different slides. To each drop, a drop of each anti-A, anti-B, anti-H and anti-D sera was added separately. On the basis of agglutination the ABO blood groups and Rh factors were detected.

Furthermore the age at menarche, length of menstrual cycle, length of menstrual flow

period, percentage of acne, hair growth in lower part of hand and limb and breast size of women belonging to different blood groups were recorded.

RESULTS AND DISCUSSION

Results are presented in table 2.

specific effect on the body physiology as well as growth. During their effect the specific blood group influences the endocrine glands also. It can be correlated with the findings of Balgir (1993) who reported that blood group phenotypes influence the age at menarche.

This finding can be correlated with the other findings indicating a relationship between par-

Table 2: Fluctuations in primary and secondary sexual characters in different blood groups

Blood group	Primary sexual characters				Secondary sexual characters					
	Age of menarche (in years)	Length of menstrual cycle (in days)	Length of menstrual flow period (in days)	Breast size (in mm.)	% of Acne			% of Hair		
	(Mean)	(Mean)	(Mean)	(Mean)	Less	More	Maximum	Less	More	Maximum
A	13.7	29.0	4.3	86.5	83.3	16.6	0.0	66.6	16.6	16.6
B	17.6	28.8	4.3	81.5	65.5	20.7	13.8	37.9	44.8	17.2
AB	13.6	28.2	4.8	83.0	60.0	20.0	20.0	40.0	20.0	40.0
O	13.9	28.6	4.6	82.2	60.0	20.0	20.0	55.0	25.0	20.0

Primary Sexual Characters

In blood group B the age at menarche and length of menstrual cycle were found statistically higher than other blood groups *i.e.* A, AB and O, whereas length of menstrual flow period was found lower than other blood groups except A. Statistical similarities of the primary sexual characters were found in blood groups A, AB and O. The breast size was the highest in blood group A in comparison to others.

Secondary Sexual Characters

In blood group A the percentage of hair growth and acne in females were found less. In blood group B, AB and O the percentage of hair growth are significantly higher. In blood groups AB and O the percentage of acne were higher.

Primary and secondary sexual characters start their development at the age of puberty. The development procedure is enhanced due to physiological activity of hypothalamus, pituitary and gonadal hormones. The endocrine physiology of these two characters is directly/indirectly related with different blood groups (A, B, AB and O systems) of human females.

The fluctuation in primary and secondary sexual characters in different blood groups indicates that a particular blood group has its

particular blood group and hormonal influences. By visualising a specific blood group its primary and secondary sexual characters can be revealed. It can be concluded from this work that the different blood groups have their own specific physiological influence on the primary as well as secondary sexual characters. Though it is a fact that blood group is not solely responsible but there are some other factors *i.e.* food habit, social status, environmental factors, stress and strain, which may influence the development of primary and secondary sexual characters of human females.

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