

FREQUENCY OF SECRETOR STATUS AMONGS NEPALESE POPULATION

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INTRODUCTION:-

After the discovery of the A B O blood group in 1900 AD by Karl Landsteiner it was realised that antigen were not only confined to the red cell but were also widely distributed throughout the body. A, B, and H substance occurs not only as alcohol soluble antigen in erythrocytes and other body cells but also present in the body fluid and secretions as water soluble glycoprotein substances. Persons who secrete these substances are known as secretor and those not secreting are labelled as non secretor. The secretor status is determined by allelic genes Se and se so that secretors may be of genotype Se/Se or Se/se while all non secretors are of the genotype se/se. In present study an attempt has been made for the first time to study the secretor status amongs the hetogenous, Nepalese population in the Kathmandu valley.

MATERIAL:-

200 samples of saliva were collected from healthy individuals of both sexes which includes staff of the Blood Transfusion Service and blood donors coming to centre. Two type of anti H lectin were used. On one hand commercial anti H of Ortho were used while on another anti H was prepared from the seeds of *Ulex Europus* in our laboratory having titer of 32.

METHOD:-

Methodology was based on that of Boorman Blood group serology saliva was collected in a tube which was boiled for 10 minutes in boiling water. Coagulum and cell debris were removed by centrifugation and serial saline dilution (1:4, 1:16, 1:64 & 1:256) were made of boiled centrifused saliva.

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One unit volume of saliva from each dilution was taken into tubes (65×10), to each tube one volume of anti H lectin were placed and tubes were incubated at 20° C for 30 mnts. After incubation time one unit volume of 5% freshly prepared group 'O' cell suspension added to each tube, mixed thoroughly and further incubated at 20° C for 5 minutes. All the tubes were centrifused. No agglutination in tube indicated presence of H substance in the saliva i.e. the person is secretor. If agglutination observed in the tube interpreted as absence of H substance in the saliva and thus individual is non secretor.

RESULTS:-

For control, saliva from known secretor and nonsecretor were also tasted side by side with every batch of test.

200 samples of saliva from both sexes and various ethnic group were studied qualitatively by agglutination-inhibition method for the secretor status. Age of the persons varied from 18 yrs to 54 yrs and regarding sex 94% were male and 6% female 76% of the sample tested showed presence of H substance in saliva while in 24% sample tested indicated persons were nonsecretors of H substance.

DISCUSSION:-

Yamakami¹⁵ first observed that antigen A and B also present in saliva. Later Friedreich et al⁶ reported that blood group antigen exist in two form, an alcohol soluble form present on the surface of red cell and tissue cell, and the water soluble form found in the body fluids and secretions. Lehrs⁹ described that the secretor character is dimorphic and there are secretors as well as nonsecretors while Grub⁸ showed that secretor phenomenon is closely associated with the Lewis blood group. All subjects whose red cells are Le (a-b+) are also secretor of the appropriate A B H substance, but secretor of ABH substance will usually have Le (a-b+) red cell but may also have Le (a-b-) red cell. On the other hand all subject whose red cells are Le (a+b-) will be nonsecretor of the A B H substance but nonsecretors of A B H substance will usually have (a+b-) red cell but may also have Le (a-b-) red cell.

A B H substance in saliva are produced predominantly by the submaxillary and sublingual glands (Wolf et. al.).¹⁴ Secretor gene can be thought as a regulator locus which controls the expression of H substance. Persons homozygous or heterozygous for Se gene have H substance and either A or B substance in their saliva. Homozygotes for se se have perfectly normal red cell antigen but lack blood group activity in secretors.

In present work among the normal Nepalese population frequency of secretors nonsecretors observed were 76% and 24% respectively. Macfarlane¹⁰ reported 64.42% people secretor and 35.58% nonsecretors while Race and Sanger¹² observed 77.28% person secretor

and 22.72% nonsecretors in population in their series. Mollison¹¹ described 80% of the population are secretor while rest 20% are nonsecretor of H substance in the saliva.

Relation with diseases: Although literature are available on association of secretor status and diseases, a great deal of work has established an association between secretor status and three conditions:

1. Duodenal ulcer—too many group O nonsecretors (Clarke et. al.)⁴
2. Rheumatic carditis—too many nonsecretors (Glynn et. al.)⁷
3. Alcoholism—too many nonsecretors (Camps et. al.)⁸

At present author is studying the correlation between diabetes mellitus and secretor status. In diabetes mellitus 90.96% of the patients were found to be nonsecretor of 'H' substance. Importance: In certain condition where at times it become difficult to group the individual by blood examination due to the acquired effect. Diseases like leukaemia where alteration of blood group antigen seen (Salmon)¹³ or in malignancy in which cancer cells progressively loose their ABH antigen has been reported (Davidson).⁵ In some bacterial infection of the gut, acquired development of B antigen has been well documented (Cameron).² Likewise in old age gradual weakening of ABH antigen seen. In mismatched blood transfusion or blood chimeras quite often difficulty arises in labelling the blood group. In such situation by examination of saliva individuals of ABO group can be ascertained which is not affected by acquired effect. Secretor test is also helpful in medicolegal examination like paternity testing, in rape cases etc.

Summary—20 samples of saliva were tested by agglutination-inhibition technique to study the frequency of secretor-nonsecretor percentage among the Nepalese population. In present study 76% of the population were secretor while rest 24% were nonsecretor of H substance in the saliva.

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