SUMMARY: 
Associations between blood groups and diseases have been recorded in the medical literature for many years. Some of the earlier ones were rather unusual and did not make much sense. But investigations during the last 3-4 decades have led to the discovery of a number of important associations which may have important relevance in medicine. One of the most notable polymorphisms implicated in disease association, which is currently generating lot of interest, is the secretor state. The present study deals with two important facets of this genetic system. One which relates to the basic polymorphic nature of the trait i.e., differences in the frequency of the secretor gene at the population level. The second most important aspect dealt with relates to the potential of secretor system as a disease marker.

With these objectives in view, blood and saliva samples were collected from normal, healthy individuals belonging to three caste groups, namely Jat Sikhs (150), Khatris (152) and Brahmins (145) of the north-west India. These samples were analysed to study the qualitative and quantitative variations of secreted antigens. Of the three caste groups screened, Jat sikhs showed the highest frequency of secretors (18%), followed by Brahmins (75%) and Khatris (69.7%). Differences in the distribution of secretor types in the three caste groups were found to be statistically nonsignificant. Quantitative assessment of secreted antigens in saliva showed a high mean titre score of H sub-
stance in blood group O secretors, in all the three caste groups studied. The study also revealed higher mean titre scores of A substance in group A secretors and of B substance in group B secretor. The mean titre scores of respective antigens in the saliva of AB secretors were relatively low. A comparison of the three caste groups showed a somewhat stronger secretion of A substance in Jat Sikhs (Titre score 6.7) than in Brahmins (5.9) and Khatris (5.6). The potential of secretor system as a disease marker was studied with respect to both noninfectious as well as infectious diseases.

NON INFECTIOUS DISEASES:

Under this category samples were collected from 105 duodenal ulcer, 93 gastritis, 74 oesophagitis, 228 nonulcer dyspepsia, 72 miscellaneous gastrointestinal tract disorders and 74 vitiligo patients. The duodenal ulcer patients showed a very high incidence of nonsecretors (38.1%). A five fold higher incidence of O nonsecretors (R.I:4.95) was recorded in these patients' mostly at the expense of blood group A. Other gastrointestinal tract disorders like oesophagitis and gastritis also showed a higher relative incidence of nonsecretors. Quantitative assessment showed a lower concentration of H substance in duodenal ulcer patients. It also showed significant departures in the quantum of secreted antigens in patients from the norms ob-
taining in normal healthy populations (e.g. secretion of B/A substance in higher strength in AB patients than in group B and group A patients).

Two diseases, namely, nonulcer dyspepsia and vitiligo did not show any association with the secretor state and ABO blood groups.

INFECTIOUS DISEASES:

Dental Caries and periodontitis were the two oral streptococcal infections investigated for the secretor state. A sample of 115 dental caries patients examined showed a markedly raised incidence of nonsecretors (31.3%). A high relative incidence value (1.7) suggested a greater propensity of nonsecretors to develop dental caries. Of the 109 patients of periodontitis tested 48.6% were nonsecretors. The incidence recorded was twice as high as that of controls (21.0%). A high relative incidence (3.5) of nonsecretors in periodontitis suggested a very strong association of this disease with nonsecretor state of ABH substances. It emerged from the results of the present study that secretors have a significantly reduced risk of streptococci infections. Lending support to these findings the quantitative analysis also showed relatively low mean titre scores of A and B substances in the group A and group B patients in comparison with the corresponding groups of controls.
136 cases of Helicobacter pylori infection in gastrointestinal tract disorders were compared with 169 cases of gastrointestinal tract disorders that tested negative for this bacterium. A higher incidence of nonsecretors (27.3%) was seen in HP patients which was also reflected in high relative incidence value (1.5). The HP+ duodenal ulcer and HP+ nonulcer dyspepsia cases were also considered separately and it was seen that 75.3% of duodenal ulcer patients were colonised by Helicobacter pylori as against 34.2% of nonulcer dyspepsia. Helicobacter pylori seems to play an important role in the etiology of duodenal ulcers. The secretor state distribution showed that the nonsecretors were infected by Helicobacter pylori (37.9%) more often than the secretor duodenal ulcer patients (62.1%). A high relative incidence value (1.7) also suggested a greater propensity of nonsecretors duodenal ulcer patients to be colonised by Helicobacter pylori. However, no such association was evident in the case of nonulcer dyspepsia patients. Also, no marked differences were observed in the mean titre scores of secreted antigens in HP+ and HP- patients.

In the final analysis it is evident from the results of present study that secreted antigens have an important role to play in human organism’s defences against disease. Striking associations have emerged between the secretor state and certain infectious and noninfectious diseases. A markedly raised incidence of nonsecretors in patients seems to indicate that nonsecretors have less effective immune protection than the secretors against these diseases.