

### **Serum fructosamine values of non-diabetic subjects in Sri Lanka**

Fructosamines are stable keto-amines formed by a non- enzymetic reaction between a sugar and protein. It has been known that a number of proteins such as haemoglobin, serum protein. Membrane protein etc. are glycated by non-enzymetic reaction forming a stable fructosamine. This process is dependent upon the prevailing plasma glucose concentration. The largest fraction of glycated serum proteins consist of albumin (60-70%) with a half in serum about 2-3 weeks. The serum fructosamine concentration can be used to assess the metabolic control of diabetic patients over a moderately short period.

As there are norms available for serum fructosamine for non- diabetic subjects in Sri Lanka, the present study was carried out to establish the reference range for serum fructosamine for non- diabetic subjects in Sri Lanka. A cross- sectional descriptive study was carried out with 326 non- diabetics and 80 subjects with impaired glucose tolerance, with equal number of males and females of age group ranging from 18 - 70 years representing 8 districts covering wet, dry and intermediate zones of Sri Lanka. Screening of non-diatetics were based on the WHO (1985) criteria, *ie* those with less than 110 mg/dl of fasting blood glucose or with the post- prandial blood glucose level of less than 140 mg/ dl. Impaired glucose tolerance subjects were screened by oral glucose

tolerance test and identified those with two hour blood glucose level of 140 - 190 mg/dL after ingestion of 75 g of glucose.

Venous blood from each subject was collected into two sets of tubes. One set contained sodium fluoride/ potassium oxalate and other set did not have any anti-coagulants. Blood collected into tubes containing anti - coagulants centrifuged immediately at 2000 rpm for 15 min. and plasma was separated and assayed for glucose by the standard glucose oxidase method, whilst the blood collected into plain tubes was allowed to clot and serum was separated and stored at - 20 °C pending fructosamine assay. Serum fructosamine assay was performed according to the method described by Johnson *et al* 1982.

Serum fructosamine values revealed that the reference value among the non-diabetic adults in Sri Lanka ranges from 240 - 260  $\mu$  mol/ L (*ie.* 2.5 to 97.5%) with a mean value of 230. No statistically significant difference ( $p>0.05$ ) was observed between males and females or between age groups. The serum fructosamine values of impaired glucose tolerance subjects fall within the range of 264 - 284  $\mu$  mol/ L (*ie.* 2.5 to 97.5 %). Therefore, the 264  $\mu$ mol/L could safely be taken as the upper normal value of serum fructosamine for non diabetic subjects. These reference values of non-diabetic adults offers a useful index of blood glucose control of diabetic and non-diabetic subjects in Sri Lanka.