

Abstracts

This number include abstracts of papers/presentations by Indian authors on subject of diabetes, published in foreign journals/periodicals during the year 1980.

High carbohydrate Diet in Diabetes : Long Term Experience

M. Viswanathan, A. Ramachandran, C. Snehalatha and V. Mohan.

10th Congress of the I.D.F., Abstract No. 639.

High carbohydrate diets (carbohydrates 67%) have been used by us in 18,000 diabetic patients over 2 decades. The composition of the diet used by us is 67% carbohydrates, 18.8% proteins and 13.2% fats. The dietary fibre content of the diet was 52 grams and hence the diet may be called high carbohydrate, high fibre (HCHF) diet. Oral drugs or insulin were used when indicated. The diet helped to achieve quick control of diabetes which was sustained for years. Acceptability of diet was good and the dose of drugs needed small. 500 patients of high carbohydrate diets were available for follow up from 10 to 15 years. Periodic estimations of blood sugar and lipids were done. There was a definite improvement in carbohydrate tolerance ($P < 0.001$). Cholesterol and triglycerides, if elevated, showed a significant reduction ($P < 0.001$). Plasma immunoreactive insulin assays showed increased peripheral sensitivity to insulin. Thus the high carbohydrate diet is (1) acceptable to patients, (2) achieves good control of diabetes and (3) lowers serum lipids. It is thus suitable for diabetics. The beneficial effects on glucose and lipid metabolism may be due to a synergistic effect of caloric restriction, high carbohydrate and low fat content, inclusion of pulses like Bengal gram and increased protein and fibre intake.

Seasonal variations in the incidence and severity of diabetes mellitus in India

J.C. Patel, B.M. Amin and S.B. Sawant.

10th Congress of the I.D.F. Abstract No. 474

In a study covering a period of 7 years, the influence of season on the detection of diabetes mellitus, on the severity of diabetes or on the occurrence of its complications was recorded. Does it have any seasonal variation? An attempt has been made to answer this question by assessing (i) demand by diabetics for admission to hospital; (ii) demand for investigation/approach to the laboratory for blood glucose estimation (glucose tolerance test, GTT), (iii) occurrence of death after admission of diabetics for various complications." Results of these investigations, i. e. (1) admission to the Bombay Hospital, Bombay and (2) seasonal demand for laboratory services including GTT and deaths due to complications of diabetes' indicated a seasonal incidence in the severity of the disease and complications of diabetes mellitus. The severity of disease decreased in the last 3 months of the year in Bombay as shown by decreased demand for GTT and for beds in the hospital. Complications affecting the skin, carbuncles, abscess and gangrene, were increased in warmer months, i.e. April to June and September.

A feedback study of treatment of maturity-onset diabetes (MOD) with regard to various treatment groups

C.V. Krishnaswami

10th Congress of the I.D.F, Abstract No. 334

This paper presents the results of computed analysis of 300 randomly sampled cases receiving treatment for MOD in 3 groups : Group A, diet alone; Group B, diet+oral hypoglycaemic agents (OHA), and Group C, diet -I- insulin. These cases were followed up regularly for 2 years, with periodic assessment of chemical control of diabetes. 32% of the cases were in Group A, 44.3% in Group B and the rest in Group C. 75% of the patients completed the 2-year follow up. Successful chemical control was obtained in 95% of Group A ($P < 0.002$) and in $81 \pm 4.17\%$ (rmean) of Group B ($P < 0.02$). Chemical control obtained in Group A was significantly better than in Groups B or C. Group A thus acted as an 'index group' in the treatment of the cases under study. The scepticism regarding the hypoglycaemic effects of OHA is perhaps because the studies so far published do not have the result in the index group, as obtained in this study. Only such a type of diet could be expected to give sustained good results in the treatment of MOD, when OHA are indicated.

Sexual dysfunction in diabetic men

V. Seshiah,

10th Congress of the I.D.F. Abstract No. 481.

Fourteen patients with diabetic impotence were studied. They were submitted for general medical, neurological, psychological, biochemical and hormonal assessment. Testicular biopsy was performed in all of them. The onset of impotence was gradual progressing over a period of 3-6 months during which there was decreased firmness of erection. The libido was almost sustained in all cases and they were psychologically sound and normal. 71 % of them had a low urinary testosterone level, sparse distribution of Leydig cells on histopathological examination of testicular biopsy specimen and 90% had a low sperm count. Our study reveals that there is a good correlation of sexual dysfunction both with testosterone level and sparse distribution of Leydig, cells in the testis and with autonomic neuropathy. The sparse distribution of Leydig cells and the low urinary testosterone levels in these selected patients has not been explained yet and requires further follow up studies.

Epidemiology of Diabetes in The Tropics-an overview

S.S. Ajgaonkar

Diabetes, 1979, Int. Congress Series 500, p. 819.

Starting with historical perspective of reported prevalence of diabetes in India and description of tropics, author highlights variations of diabetes amongst Indians and expatriates which is 1.9% to 10.3%.

Analysis of epidemiological determinants hereditary, nutrition, climate, urbanization is provided comparing it with the known data from the western countries.

Clinical variants as young onset diabetes, pancreatic diabetes are briefly described and related to malnutrition.

Incidence of complications as infections, vascular disease in reported and Indian experience is brought out.

The author concludes with many queries on low and high prevalence in same geoclimatic area, lower incidence with higher economic strata relating diabetes to undernutrition, male sex predominance and absence of microangiopathy in some racial groups especially in Africa.

Hypothalamic regulation of glucose homeostasis

Bajaj, J.S., Chhinna, G.S., Gark, S.K., Mohan Kumar, and Singh, B.

Diabetes, 1979; Inter. Congress Series 500, page 70

Hypothalamic regulation of glucose homeostasis is mediated through (i) effects on the feeding and satiety behaviour, (ii) alteration in the gastrointestinal absorption, motility and blood flow, with possible changes in the secretory pattern of gastrointestinal hormones, (iii) changes in hepatic glucose output, (iv) neuroendocrinal and neurohumoral effects on hypophysis and pancreas affecting intermediary metabolism including peripheral glucose utilization. EEG studies have been used as index of neuronal activity under various states of glycaemia, insulin content in experimental diabetes.

Involvement of hypothalamus with integration of autonomic, endocrine and somatic mechanism for glucostatic/energostatic mechanism is brought out from the experimental data.

Challenges of patient education in semi-literate and illiterate populations

Ahuja, M.M.S. Diabetes-1979,

Int. Cong. Series 500, p. 803.

Present economic status and health conditions in the developing countries are indeed meagre and dispotential for the possible goal of health for all by 2000 A.D.

Variations in profile of diabetes in Indian context are elaborated with biochemical and clinical data. An analysis of the effect of literacy on interval between onset of symptoms and detection of diabetes, difference on presentation, disabilities and complications; treatment compliance and longevity of life has been carried out at Diabetes Clinic, AIIMS, New Delhi. This information provides an insight to the practical aspects in the limitations for achieving goals of diabetic care in populations with limited resources.

In evolving strategy for providing health care delivery in developing countries, preventive, promotive, curative and rehabilitative components are exemplified and plea offered for future health planning to include non-communicable and metabolic disorders in the total health package. Screening of high risk population, scientific evaluation of local diets and indigenous drugs, monitoring treatment through day care centres and institution of primary preventive trials are suggested to yield dividend to underprivileged populations.

Alloxan-glucose interaction : effect on incorporation of ¹⁴C-leucine into pancreatic islets of rat

Renu Bansal, Nafees Ahmed, Jalil R. Kidwai

Acta Diabetologica Latina, 17, 135.

The acute effect of alloxan on the incorporation of ¹⁴C-leucine into isolated rat islets of Langerhans was studied. I.V. administration of alloxan (40 mg/kg body weight) in rats inhibited the subsequent in vitro incorporation of ¹⁴C-leucine into (pro)-insulin in the isolated islets. Glucose (750 mg/kg body weight), when administered 5 min. prior to alloxan, completely protected the islets against alloxan toxicity. The protective effect of glucose was partly reversed when the concentration of alloxan was raised to 80 mg/kg body weight. Similar results of inhibition of (pro)-insulin biosynthesis by alloxan and its protection by glucose were obtained when isolated rat islets were exposed to alloxan and/or glucose invitro. Islets exposed to glucose in vitro immediately after alloxan exposure showed a slower rate of inhibition of (pro)-insulin biosynthesis, as compared to islets washed before exposure to D-glucose. In view of these findings, it is suggested that there is a common recognition site on B-cell for alloxan and glucose.

In vitro conversion of proinsulin to insulin by cathepsin B in isolated islets and its inhibition by cathepsin B antibodies

Renu Bansal, Nafees Ahmad and Jalil R. Kidwai

Acta Diabetologica Latina, XVII, 255.

Purified bovine cathepsin B. when incubated with isolated rat islets of Langerhans, completely converts proinsulin to insulin as demonstrated by the incorporation of ¹⁴C-leucine into islet proteins, releasing lysine as the only basic amino acid. Cathepsin B antibodies raised in rabbit inhibited the above conversion.