Goals of Therapy in Diabetes

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Diabetes, mellitus is a heterogeneous syndrome due to deficient insulin secretion and/or due to defective insulin action resulting in hyperglycaemia and other metabolic disturbances. It necessitates continuous medical care and patient-education to prevent acute complications and minimise or prevent the risk of long term complications. This could be achieved by proper and standard medical care.

The goals in the management of diabetes are to render the subjects, symptom free, restore euglycaemia, achieve the ideal body weight and ensure normal growth and maturation. Careful medical attention is required for special situations like pregnancy and surgery. To realise these objectives, the diabetics require standard medical care, which includes clinical examination, laboratory evaluation, and a management plan.

PHYSICAL EXAMINATION

A complete history and physical examination should be performed during the initial visit. It is necessary that every visit should be accorded the same attention. The examination should include skin, oral cavity, foot examination, peripheral pulses, blood pressure recording, fundus examination, auscultation of the heart, and simple neurological tests like tendon jerks and vibration sensation (Table-1).

TABLE 1
Physical Examination

1. Height and weight measurement
2. Skin examination
3. Oral cavity examination including dental and periodontal examination
4. Foot examination
5. Sexual maturation staging in children
6. Palpation of peripheral pulses
7. BP recording (with orthostatic measurement)
8. Cardiac examination
9. Neurological examination
10. Fundus examination
11. Thyroid palpation

LABORATORY EVALUATION

Initial Laboratory parameters should include evaluation of metabolic profile (glucose status) associated lipid changes, renal status and basic lines X-ray chest, ECG (Table 2). The aim of all therapeutic measures is to maintain the biochemical parameters at least at the acceptable level though the ideal goal is to achieve and maintain normal physiological level. The parameters to be evaluated are given in Tables-3, 4 and 5.

TABLE – 2

1. Fasting, PP or random blood glucose level
2. GTT if necessary
3. Glycosylated haemoglobin/Fructosomine
4. Lipid Profile: serum cholesterol, triglycerides, HDL cholesterol
5. Urea and creatinine
6. Urinalysis (glucose, proteins, ketones), culture if indicated by presence of pus cells in urine
7. ECG
8. X-ray chest

TABLE – 3
Parameters of Control – Glucose

Non-Pregnant State			
Plasma glucose (mgm%)	**Ideal**	**Acceptable**	**Poor**
Fasting	< 100	140	> 140
Post Prandial	< 140	200	> 200
GHb (%)	< 8	8 – 9	> 9
Pregnancy			
Fasting	< 90		
Post Prandial	< 120		
Mean blood glucose	105		
GHb (%)	< 7		

TABLE – 4
Parameters of Control – Lipids (mg/dl)

	Ideal	**Acceptable**	**Poor**
Total Cholesterol	< 200	200 – 250	> 250
HDL	> 45	32 – 45	> 35
LDL	< 125	125 – 150	> 150
TG	< 150	150 – 200	> 200

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TABLE – 5
Parameters of Control – Others

			Ideal	Acceptable	Poor
BP			< 130/80	< 140/90	> 160/90
BMI	(kg/M^2)	M	< 25	£ 27	> 27
		F	< 24	£ 26	> 26

MONITORING

The success in monitoring the control depends upon literacy, socio-economic status, physician's distribution and laboratory facilities. These factors assume greater importance in developing country like India with its huge population of more than 800 million. The prevalence of diabetes is 2 to 4%, which roughly makes 16-32 million diabetics.

Though India has adequate number of qualified medical persons to satisfy the doctor to population ratio of 1: 1100, on field there is mal-distribution of doctors. About 75% of medical practitioners are in urban area catering for 20% of the country's population whereas only 25% of them serve 80% of the rural population which works out to 1 doctor for 20,000 rural population.

There is yet another problem of quality laboratory facilities which are almost non existent in many parts of the rural areas. Here comes the importance of urine glucose testing. Urine glucose testing remains the simple test, cheapest and least non-invasive method of self -monitoring of diabetes despite its limitations.

MANAGEMENT PLAN

Therapy has to be individualised. The factors to be considered in planning the treatment are the degree of metabolic derangement, age, dependency, occupation, ability to learn and comply and socio-economic status.

A comprehensive management plan would include

a) Individual counselling (with objectives of normalization of body weight).
b) Exercise regimes (to improve metabolic control).
c) Medications (depending on the type of diabetes)
d) Life style adjustments (to reduce associated vascular complaints).

SPECIAL SITUATIONS

Pregnancy

For good foetal outcome pregnant women and women desirous of becoming pregnant, require excellent blood glucose control. Pre-pregnancy counselling is essential for women planning pregnancy. These women have to be managed by both obstetrician and diabetologist throughout pregnancy. Pregnancy is a situation, where self monitoring of glucose needs to be stressed. The blood glucose level to be achieved during pregnancy is lower than the non-pregnant state (mean plasma glucose of 105mgm%)

Hypertension

Hypertension contributes to the development and progression of chronic complications. The drug selected to control hypertension and diabetes has to be individualised to minimise the side effects. For example alphamethyldopa is to be avoided as it is likely to produce impotence. ACE inhibitors, Ca^+ channel blockers and selective beta-blockers are preferred.