

Managing Clinical Diabetes at the Primary Care Level

by

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Introduction

40 years of clinical practice both as Out patient consultations and In patient care including all diabetic emergencies and associated co-morbid problems / emergencies has helped to view the problem from 3 angles:

- ❖ **Primary Care physician's**
- ❖ **Internist's**
- ❖ **Diabetologist's**

Interesting facts

30 million people have diabetes in

India 57.2 million by 2025

5th patient visiting a Consulting Physician

has Diabetes

6th patient visiting a Family Physician

has Diabetes

INDIA THE DIABETES CAPITAL OF THE WORLD

10th Congress of The International Diabetes Federation, Vienna, Austria – September 1979

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

Dr.C.V.KRISHNASWAMI, Madras, India

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 + 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 ($P < 0.0002$) and in $81 + 4.17\%$ (mean) of Group B ($P < 0.02$). Chemical control obtained in Group A was significantly better than in Group B or C. Group A thus acted as an 'index group' in the treatment of the cases under study. The skepticism 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.

- ❖ **How to proceed when a person presents with Hyper Glycaemia & Glycosuria?**
- ❖ **What investigation?**
- ❖ **Diagnosis of Diabetes, IGT, AGT,etc.**

Florid Diabetes

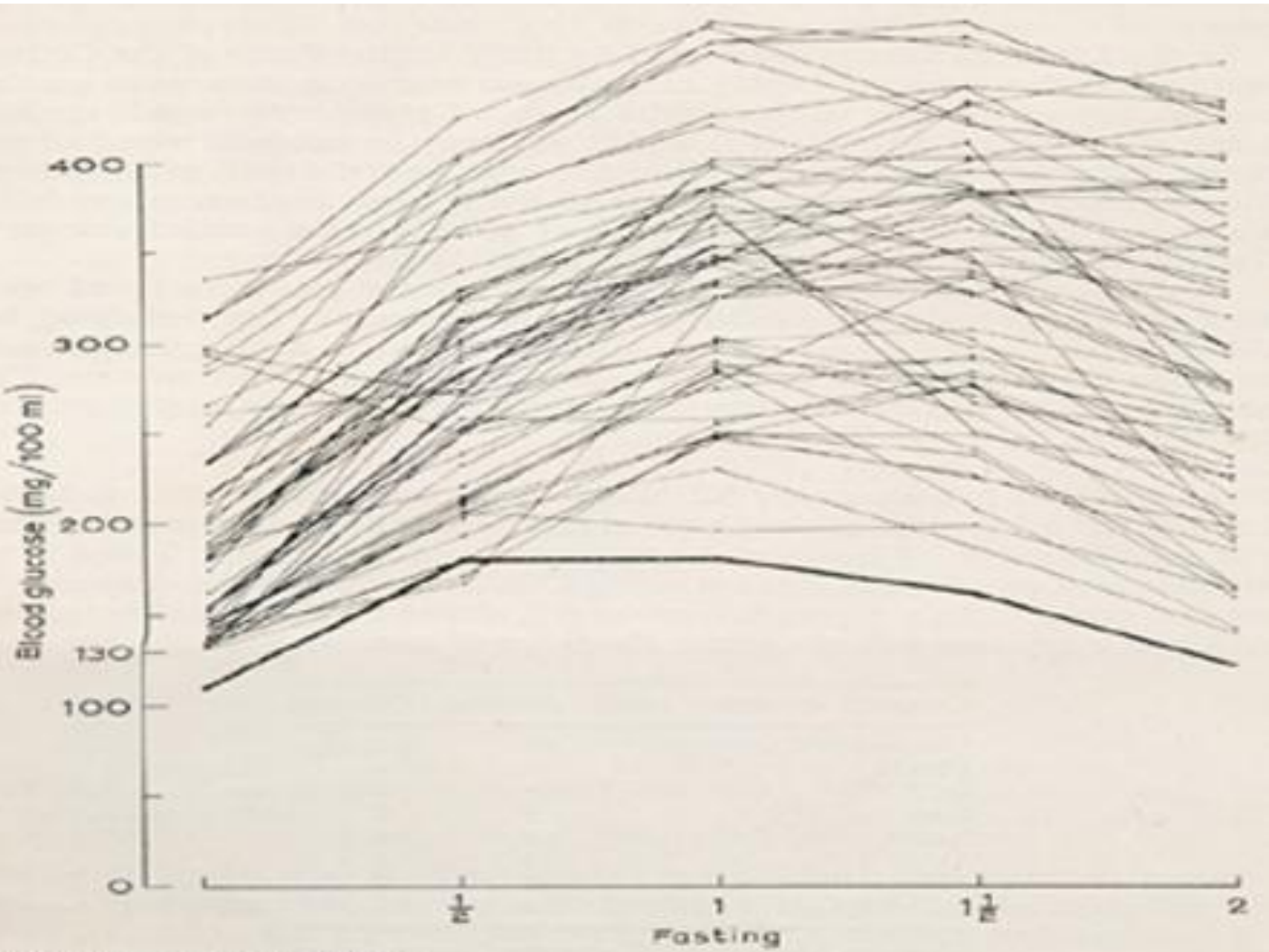
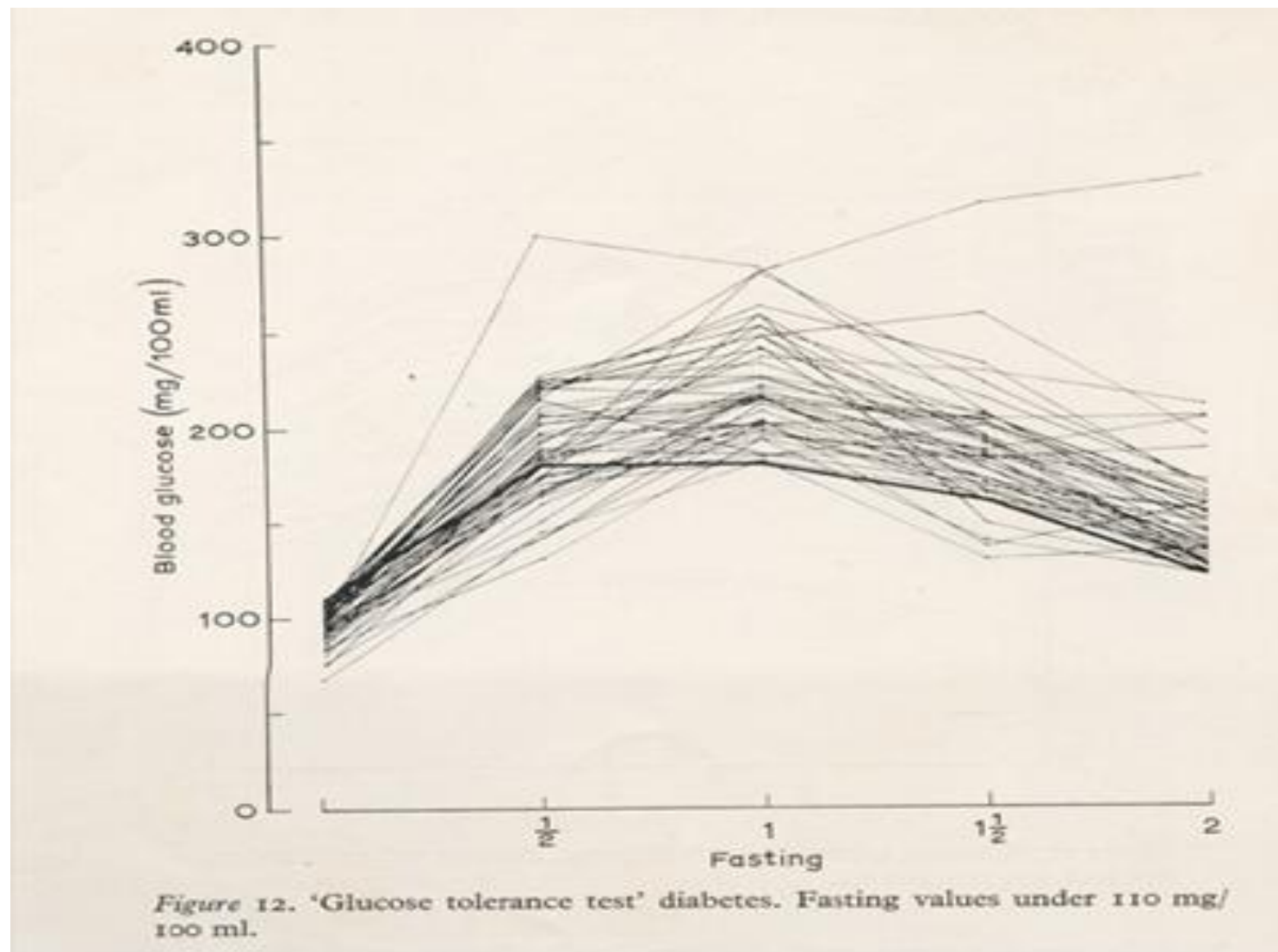


Figure 10. Florid diabetes.

GTT Fasting Values Under 110 mg/100ml



Miscellaneous Group A.

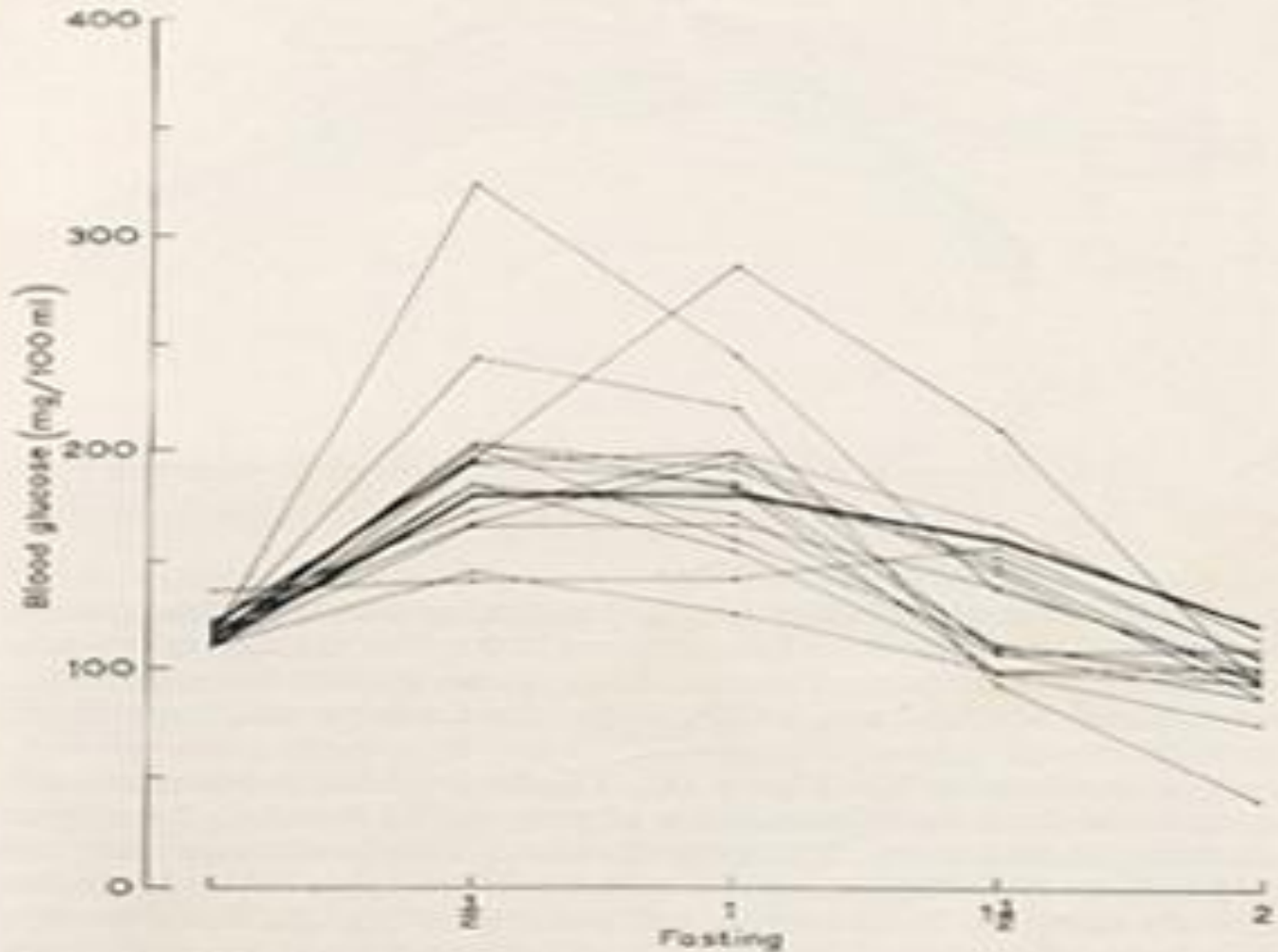


Figure 14. Miscellaneous Group A.

Miscellaneous Group B.

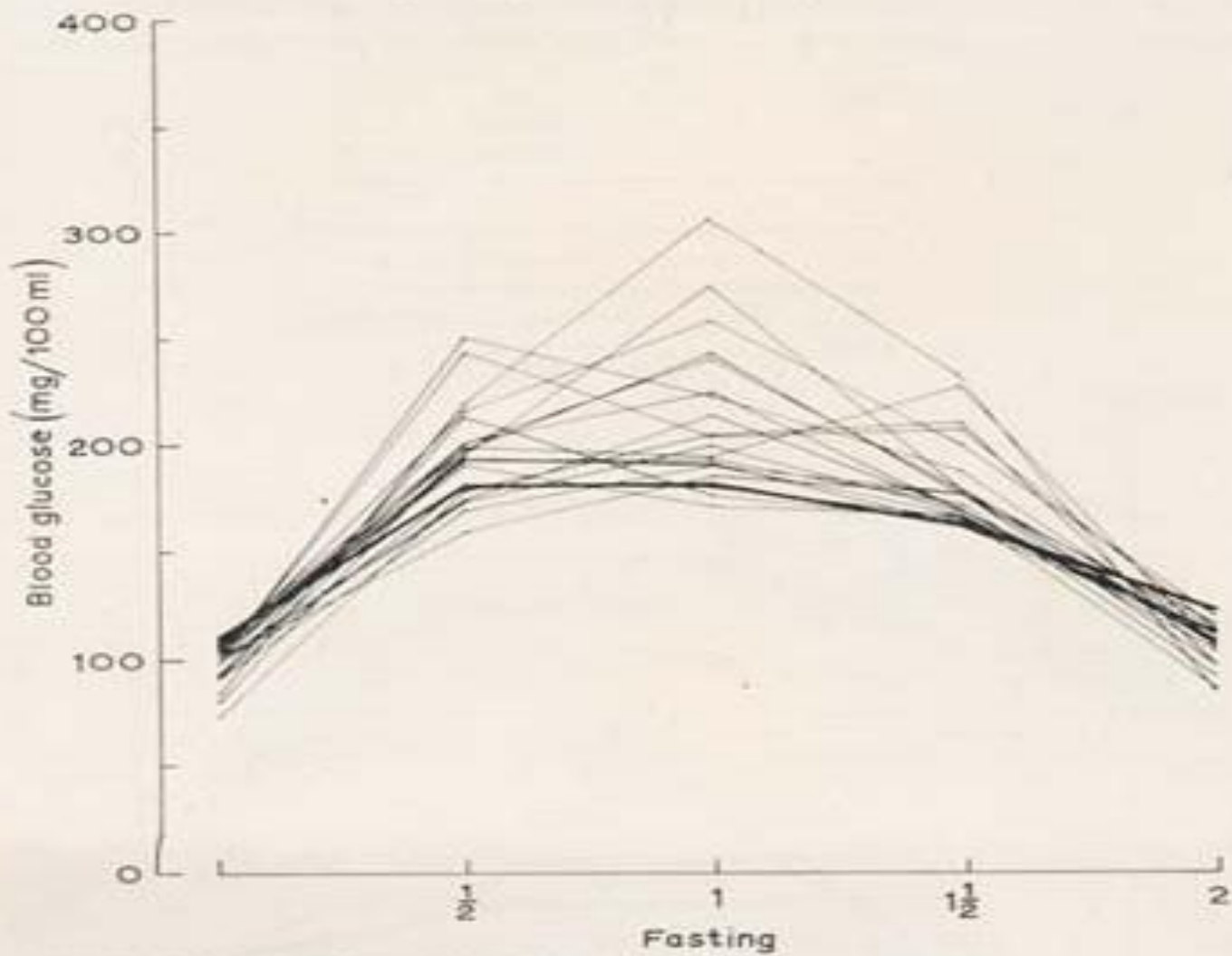
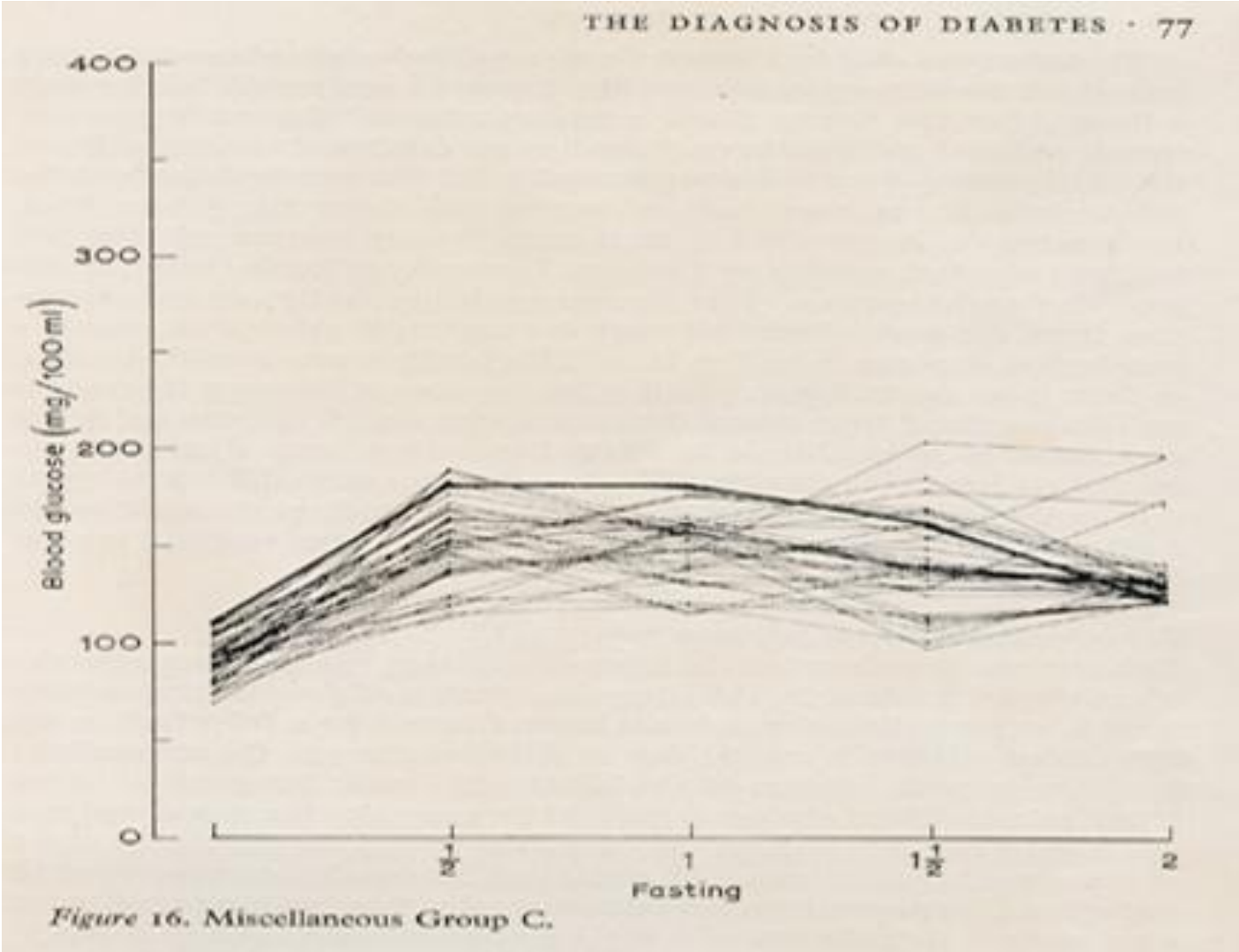


Figure 15. Miscellaneous Group B.

Miscellaneous Group C.



Diabetes Mellitus Presenting without complications and without emergency (Uncomplicated)

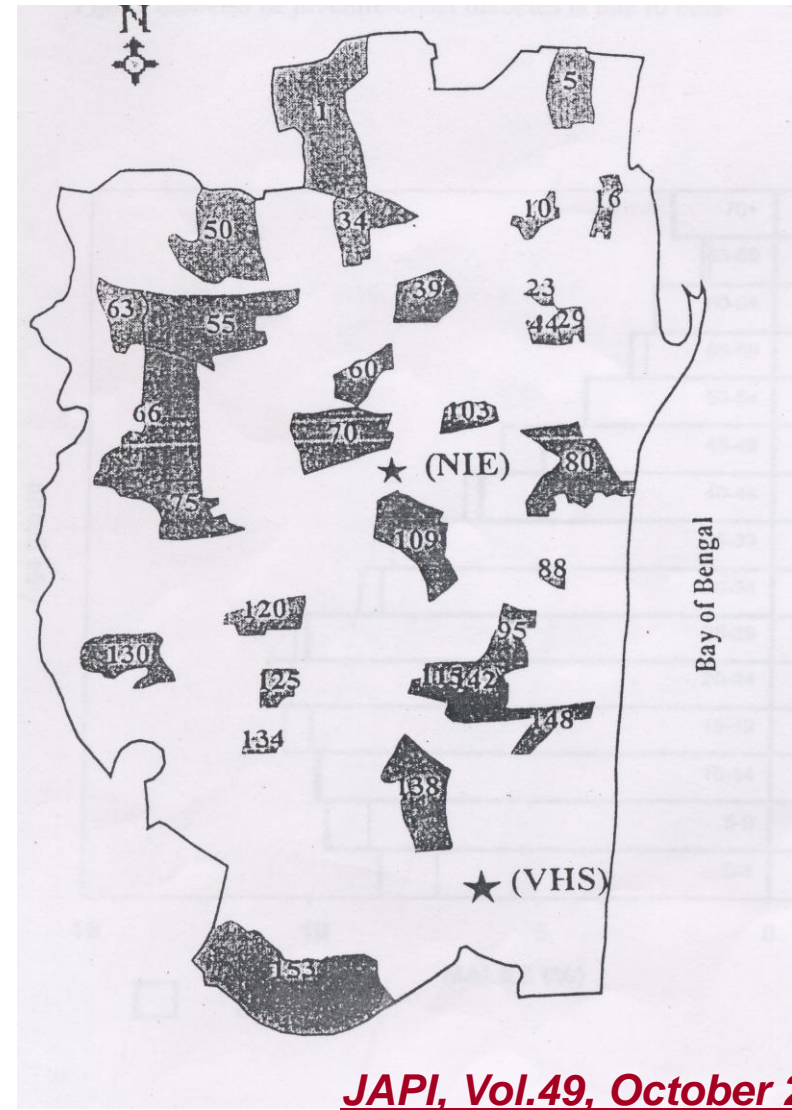
- ❖ 1 – 15 years → Refer to Hospital / Diabetologist.
- ❖ 15 – 30 years → Refer to Diabetologist for baseline opinion & classification.
- ❖ 30 – 50 years
- ❖ 50 – 65 years
- ❖ 65 years & above

Prevalence of Known Diabetes in Chennai

Results :

Among 26,066 individuals of all ages 779 had known diabetes and 99.4% of them had Type - 2 diabetes. The prevalence of known diabetes was 2.9% for all ages and both sexes combined.

Crude and age - standardized prevalence was 4.9% (95% CI 4.6 - 5.2) for those aged > 20 years. The standardized prevalence was 10.5% (95% CI 9.8 - 11.2) in those aged >= 40 years. The prevalence was significantly high ($p < 0.05$) in females.



Prevalence of Known Diabetes in Chennai

AGE - SPECIFIC PREVELANCE OF KNOWN DIABETES ACCORDING TO SEX

AGE (YRS)	MALES			FEMALES			TOTAL		
	PEOPLE	DIABETES	PREVELANCE	PEOPLE	DIABETES	PREVELANCE	PEOPLE	DIABETES	PREVELANCE
0-9	2066	0	0	2000	0	0	4066	0	0
10-14	1267	0	0	1224	1	0.08	2491	1	0.04
15-19	1374	0	0	1356	0	0	2730	0	0
20-24	1353	0	0	1441	5	0.3	2794	5	0.2
25-29	1350	5	0.4	1461	4	0.3	2811	9	0.3
30-34	1168	7	0.6	1046	11	1.1	2214	18	0.8
35-39	1094	23	2.1	1068	24	2.2	2162	47	2.2
40-44	908	42	4.6	758	42	5.5	1666	84	5.0
45-49	818	56	6.8	675	51	7.6	1493	107	7.2
50-54	604	72	11.9	499	65	13.0	1103	137	12.4
55-59	425	61	14.4	354	52	14.7	779	113	14.1
60-64	389	46	11.8	340	59	17.4	729	105	14.4
65-69	223	34	15.2	191	39	20.4	414	73	17.8
70+	327	38	11.6	287	42	14.6	614	80	13.0
TOTAL	13366	384	2.9	12700	395	3.1	26066	779	3.0

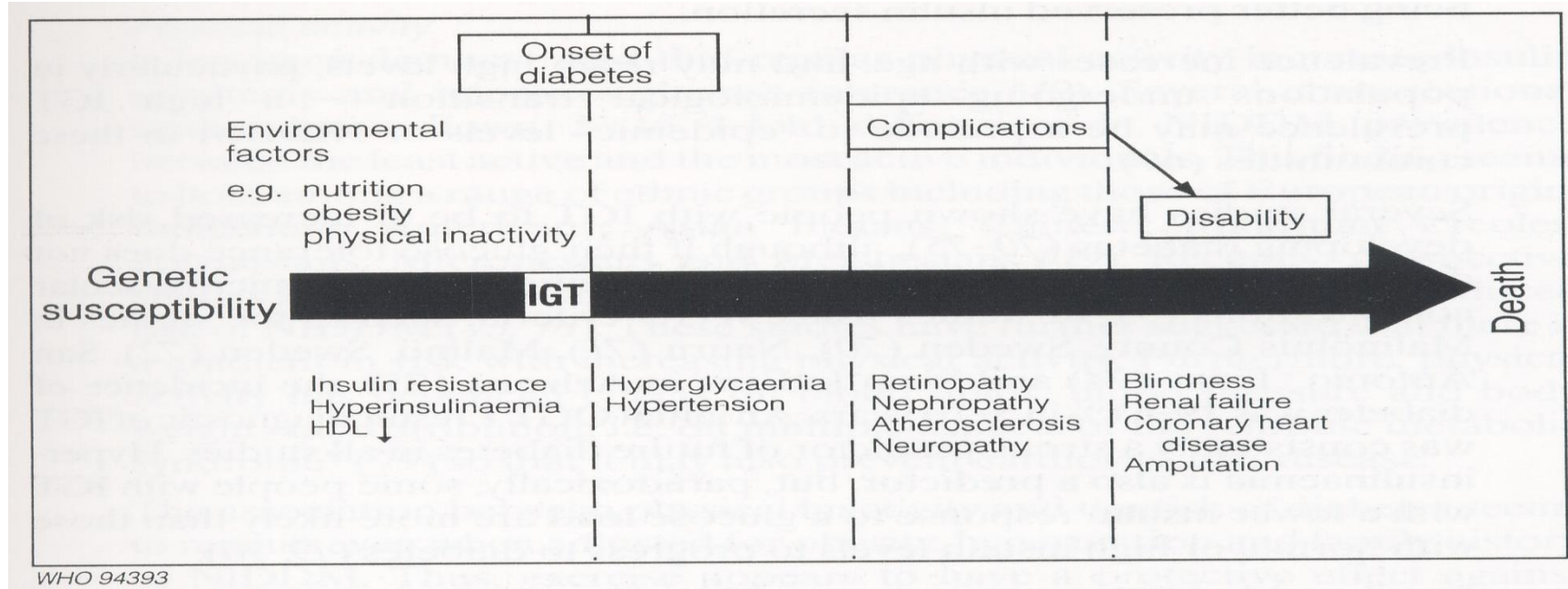
Prevalence of Known Diabetes in Chennai

Conclusion :

The prevalence of known diabetes was low in total population but increased in those aged > 20 and further increased in those aged ≥ 40 years. The causes for high prevalence in > 40 years age group needs to be explored in this population.

JAPI, Vol.49, October 2001

Is Diabetes moving to the left striking younger people?



Yes; Due to:

- a. Phenomenon of Anticipation.**
- b. Life Style Factors.**
- c. Obesity & Sedentary Habits, Lack of Exercise (e.g. I.T. Professionals)**
- d. Stress (High in Today's Rat – race {e.g. Stock Market, I.T. etc.})**

SAMPLE MENU

EARLY MORNING 6.30 A.M

MILK-150ml



BREAK FAST 8.30 A.M

Idli-3
Mint Chutney-2tbsp
Sambar.



MID MORNING 10.30 A.M

Veg Soup-1 Cup.



LUNCH 12.30 P.M

Rice - 2Cups (100g raw wt)
DrumStick Sambar - ½ Cup
Cabbage Kottu-½ Cup
Beans Curry - (100gms)
Curd-1/2 Cup.



TEA TIME 3.30 P.M

Coffee (Milk)-100ml.
Sprouted Green Gram
Dhal Sundal-¼ Cup(25 gram

MID EVENING 5.30

Apple-1 (Small)

DINNER 8.00 P.M

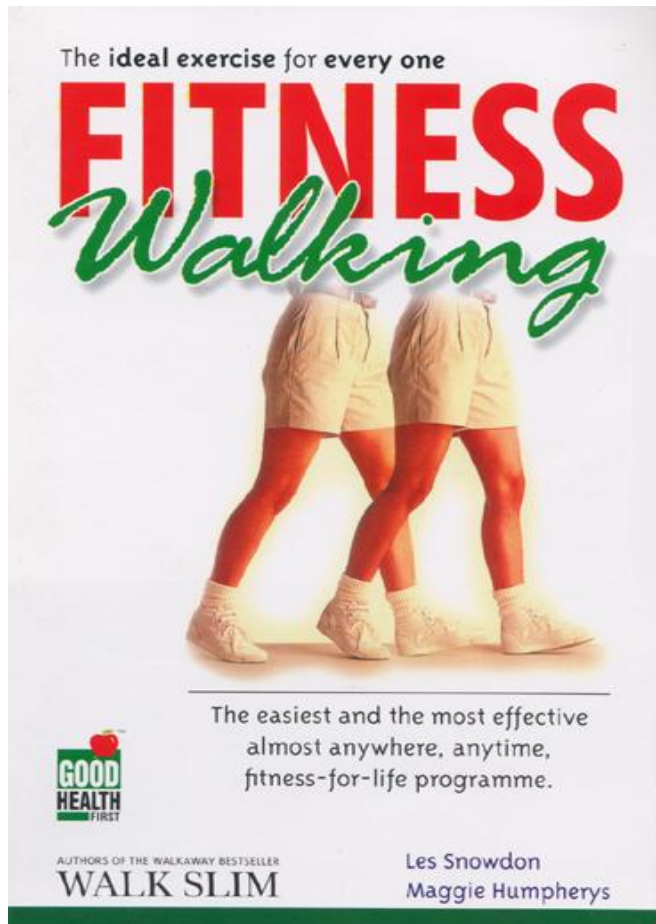
Phulkas-3
Capsicum Gravy - ½ Cup
Salad

BED TIME

MILK-150ml

Exercise

Diet, Exercise reduce diabetes risk : Study



The US government's National Institutes of Health (NIH) on Wednesday announced the results of a diverse group of 3,234 overweight Americans with impaired glucose tolerance, a condition that often precedes diabetes.

Participants who were directed to eat a low-fat diet and to engage in moderate exercise, such as brisk walking or riding a bike for 30 minutes a day five days a week, reduced by 58 percent their risk of getting type 2 diabetes, which accounts for up to 95 percent of all cases of the incurable diabetes.

Glucophage, approved in 1995 to treat type 2 diabetes, is a pill that lowers blood sugar. The company said it was considering asking the government to approve the drug for preventing diabetes as well as treating it.

Diet, Exercise reduce diabetes risk : Study

The study found Glucophage was effective primarily in the most obese patients and those in the youngest age group studied, ages 25 to 44. A low-fat diet and exercise however produced strong results across the board.

“While the lifestyle intervention was effective across all age groups, all minority groups and both genders, that was not the case with metformin,” Dr Allen Spiegel , director of the NIH’s National Institute of Diabetes and Digestive and Kidney Diseases, which backed the study, said in an interview.

The study was designed to last four years, but Mr. Spiegel said the striking nature of the results led researchers to end a year early to get the word out about diet and exercise.

Primary Prevention of Type 2 Diabetes Mellitus by Lifestyle Intervention: Implications for Health Policy

Centers for Disease Control and Prevention Primary Prevention Working Group*

Variable	daQuing IGT and Diabetes z Study(7)	Finish Diabetes prevention Studt(8)	Diabetes Prevention Program(9)
Participants,n	520	522	3234
Women,%	47	67	68
Mean age+SD,y	45.0±9.1	55±7	506.±6.7
Mean body mass index+sd,kg/m2	25.8±3.8	31.2±4.6	34.0±6.7
race/ethnicity,%			
White	-	-	55
African-American, Hispanic,American indian,and Asian	-	-	45
Study duration,y	6	3.2*	2.8*
study groups	Control, diet, exercise diet plus exercise	Control, lifestyle(weight loss, diet, physical activity)	placebo metformin,lifestyle(weightloss, physical activity,diet)
Adjusted reduction in the incidence of diabetes,%	Diet:31 Exercise:46 diet plus exercise:42	lifestyle:58	Metformin:31 Lifestyle:58

- ❖ **Insulin**
- ❖ **Oral Hypo Glycaemic Agents**
- ❖ **Supportive medication**

Role of Yoga in Diabetes Mellitus – Prevention and Control

Yoga can play a very important role in prevention of Type 2 Diabetes: For this, The Persons at Risk should be trained in Yogic Education from childhood in schools and colleges itself, and the practice should be made into a way of life. Sustained and Long – term control of Diabetes requires:

1. Discipline.
2. Determination.
3. Direction.
4. Decision.

Yoga and Type 2 Diabetes

In cases of established T2DM, Yoga's role is less impressive. But it could prove to be useful as a complimentary co – therapy to Diet control and walking. Indeed if properly practised, yoga could help in lessening stress factors and therapy play a positive role in controlling blood sugars. Thus, in around 40% of the cases of freshly detected mild to moderate T2DM yoga could complimentarily benefit the individuals in avoiding / Postponing, drug therapy for several years.

The following Asanas may be done daily

Asanas For General Use



PADMASAN
Lotus



BHUJANGASAN
Cobra



MATSYASAN
Fish



SHAVASAN
Relaxation



PADA-UTTAN
Leg-Lift



SALABHASAN
Locust



DHANURASAN
Bow



PAVANAMUKTASAN
Wind-Relief



CONTRA POSE
Body Lift



SURYA NAMASKAR
Sun Asan

The following Asanas may be done for limited use under Doctor's advice only

Asanas For Limited Use Under Medical Advice Only



NAVASAN
Boat



TRIKONASAN
Triangle



**ARDHA
MATSYENDRA**
Spinal Twist



UDDIYANA BANDHA
Diaphragm Lift



SETHU BANDHA
Bridge Pose



**VAJRA
CHAKRASAN**
Semi Wheel



CHAKRASAN
Wheel

The following Asanas are better be Avoided

Asanas Which Are Better Be Avoided



PADAHASTHASAN
Forward Bend



HALASAN
Plough



PASCHIMOTTAN
Back Stretch



SARVANGASAN
Shoulder stand



SIRSHASAN
Head-stand

Follow – up Protocol

A. Initial Workup

- ❖ Full Bio Chemistry / GTT clinical path Investigations HBA1c
- ❖ Lipid Profile, TFT.
- ❖ LFT
- ❖ Amylase, Ca, Phos
- ❖ Urine Analysis, Urine C/S + 24 hours urine protein excretion
- ❖ Chest X-Ray (PAV), ECG, USG whole Abdomen & Pelvis

Special additional investigations customized according to complications in individual cases.

Follow – up Protocol

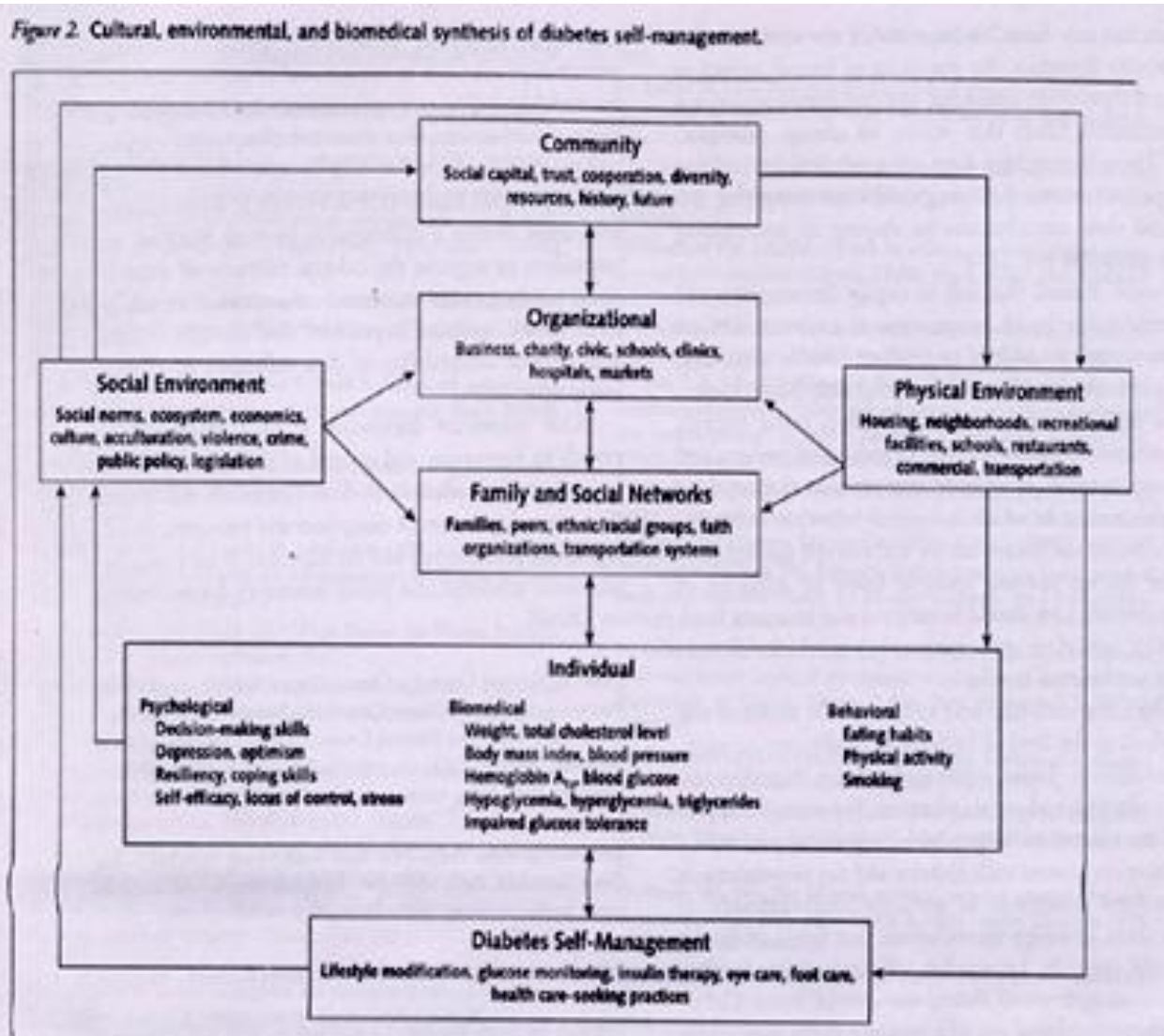
B. Follow – up

- I. Once in 6 – 8 weeks: FBS, PPBS, Urine Analysis.**
- II. Once in 3 – 4 Months: FBS, PPBS, HBA1c, Urine Analysis.**
- III. Once in a Year: Full Annual Package (Including Lipid Profile, TFT, LFT etc. where indicated)**

C. Self Monitoring of Blood Glucose and use / interpretation of results.

D. Educating Doctors / Persons with Diabetes on Self Management.

Cultural, Environmental & Biomedical Synthesis of Diabetes Self – management.



When to refer to a specialist?

Major Diabetic Complications

- ❖ **Diabetic Poly Neuropathy & Diabetic Foot**
- ❖ **Renal**
- ❖ **Eye**
- ❖ **Cardiac / Hyper Tension / CAD / CARDIOMYOPATHY**
- ❖ **Stroke / Other CNS complication e.g. Cranial Nerve Palsies, Autonomic Neuropathy**
- ❖ **Erectile Dysfunction (Impotence)**

Conclusion

Diabetes is a heredo–Familial disorder with a complex genetic inheritance that can manifest in an individual at any age from birth till death and as such it is important to realize that strategies for control of diabetes particularly drug therapies for should pass the test of acceptance without major significant drug induced (iatrogenic) side effects on major organs like the liver, kidney etc.

The main aim of drug treatment in diabetes is to achieve sustained control of blood sugars & HBA1C without causing significant or life threatening hypoglycemia.

The Business Case for Diabetes Disease Management

HBS Conference Coverage



Disease management, then, can take several approaches. *The simplest is probably for the healthcare provider to offer a monitoring system for patients who have already been diagnosed as diabetics, sending out e-mail or making phone calls to remind patients of test and checkup dates.*

Another route is to offer a combined monitoring, tracking, and alert system. This method automatically lets the healthcare provider know if patients skip their tests or if a more intensive treatment seemed warranted by the latest test results.

A third approach—less common—is to create a coordinated "virtual team" around the patient, by sharing lab data, insurance claims data, and pharmacy data in an attempt to enhance overall care.

by Martha Lagace

November 17, 2003

Conclusion

Life style modification like diet, exercise, cessation of smoking habit, moderating intake of alcohol, alteration of stress factors both at home and at work place, individual psycho–social & behavioral factors, all these play important roles in the fluctuation of glycaemica of the individual patient.

Hence the most important aspects of managing a life long condition like Diabetes Mellitus can be successful only if a proper chronological clear medical record is kept for every case. The value of such a record during emergencies & routine visits of the patients is immeasurable.

Thank You

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