

Assessment of the Knowledge of The Goal of Treatment And Follow-Up Schedule Among Diabetic patients: A Teaching Hospital Experience.

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I. Introduction

Diabetes mellitus is a complex, chronic debilitating disease. Globally there is a huge surge of diabetic population which is in the epidemic proportion and India is expected to be the capital of diabetes in 2015. Managing a chronic disease and especially a complicated disease such as diabetes mellitus requires a continues informed participation and involvement of the patient in the overall management. The meaningful participation can be achieved only when they are well informed about the treatment goal and the recommended follow-up schedule. Patients knowledge on diabetes treatment goal and the required follow-up schedule will help motivate the patients for the optimum control of diabetic status, detect complications at the early stage and thus improve the overall outcome of diabetic patients. There is paucity of data, at least in the region ascertaining the knowledge level of patients about the treatment goal for which they have been given anti diabetic measures/therapy. It is also vital to know the awareness of the patients in terms of the recommended follow-up schedule. The outcome of the study could pave the way for formulating viable ways and means to educate and empower patients of diabetes mellitus, thus ensure optimum diabetes treatment outcome. Health education is paramount in dealing with such a disease of epidemic proportion. Knowing the knowledge level of the patients about the basic yet vital information about diabetes will help the health authority to formulate strategy to enhance the efforts to fight menace of diabetes and its dreaded complications. This will not only save life but also the national economy. A drug may save a life but an effective education has the potential to save generations.

Aims and objectives:

1. To study the knowledge of the goal of treatment of diabetes among diabetes mellitus patients.
2. To study the awareness level about the follow-up schedule of diabetes among diabetic patients.

II. Material And Methods

This is an observational cross sectional study. One hundred diabetic patients, diagnosed as per the American Diabetic Association (ADA) criteria, who attended OPD (medicine and pathology Lab.), admitted in medicine ward, are included in the study. All eligible subjects were interviewed using a pre-designed structured questionnaire. The questionnaire contents 3 parts; 1st part pertains to demographic data and diabetes medical information of the subjects, 2nd refers to the treatment goals and 3rd part relates to the follow-up schedule of diabetes patients. Thereference parameters in the study and questionnaire are as per the American Diabetic Association guideline. Response to the 2nd and 3rd part of the questionnaire will be scored which comprises 21 closed ended questions. The questionnaire was translated to local language by the trained interviewer who conducted the interview. The data are entered in excel sheet and analyzed statistically to arrive at a scientific conclusion. Inclusion criteria: All diabetic men or women above 15 years of age diagnosed by a doctor and having blood capillary glucose >126mg/dl (fasting) and/or 2-hr post prandial-glucose value >200mg/dl and who consented for the study Exclusion criteria: Diabetic below 15 years of age. Those not consented for the study interview. Gestational diabetics and diabetic medical personals who by virtue of their profession would be well informed about the treatment goal and follow up schedule of diabetics and hence findings cannot be extrapolated as representing a common men's level of knowledge on the issues.

Composite Scoring: marking was done as follows: one mark for each correct answers of the closed ended questions. Zero marking for incorrect and don't know response. A composite score in percentage was derived. The individual score in percentage was graded as poor, below average, Average, good and excellent according to the following scale.

Poor-below 30% of the total in questionnaire

Below average-30-50% of the total in questionnaire

Average-50-70% of the total in questionnaire

Good-70-90% of the total in questionnaire

Excellent->90% of the total in questionnaire

Questionnaire:

1st part: personal characteristic's:

Name-

Age (years) -<15/15-25/26-35/36-45/46-55/56-65/66-75/>75

Gender-M/F

Occupation - Govt.employee/NGO/student/business

Qualification-uneducated/primary/under-graduate/graduate/postgraduate/postdoctoral

BMI-<18/18-24.9/25-30/>30

Diet-Vegetarian/non-vegetarian

Family history of diabetes-yes/no

Date/month/year of diagnosis-

Symptoms prompting test- weakness/excess urine/weight loss/fever/incidental /others/routine

Duration between symptom and actual performance of test-days/weeks/months/years

Duration between diagnosis and actual treatment initiation-days/weeks/months/years

Reason for delay in initiation of treatment-lack of motivation/opt for alternative medicine/lack of time/ tried diet and exercise

Who suggested for test /medical consultation before consulting a doctor-self/family member/friend

Baseline sugar level at the time of diagnosis-

Treatment given-oral(specific molecule),Insulin,alternative medicine,diet,life stylemeasures,others

Co-morbidity-HTN, Dyslipidemia,obesity, heart disease, kidney disease, Liver disease and others

Source of knowledge on diabetes mellitus-books/magazine/radio/TV/health personal/ newspaper /others

2nd part : treatment goal of diabetes:

A. Need for regular sugar level : yes/no/don't know

B. Blood Sugar Fasting-70-130mg/dl: yes correct /incorrect /don't know

C. Blood sugar post prandial-<180mg/dl: yes correct/incorrect/don't know

D. HbA1c-<6.5%: yes correct/incorrect/don't know

E. Need for Blood pressure assessment : Yes/no/don't know

F. Target Blood pressure level -<130/80mmhg : yes correct/incorrect/don't know

G. Need for regular lipid assessment : Yes/no/don't know

H. Target LDL-<100mg/dl : yes correct/incorrect/don't know

I. Target HDL->40mg/ in men &>50mg/dl women : yes correct/incorrect/don't know

J. Target Triglycerides-<150mg/dl : yes correct/incorrect/don't know

3rd part:Schedule for follow-up/frequency of testing of diabetic patients:

K-Need regular follow-up after initiation of treatment :yes/No/Don't know

L- blood sugar-If controlled-3monthly :yes/No/Don't know

M-blood sugar - If Uncontrolled-2weekly :yes correct/incorrect/don't know

N-HbA1c-if controlled-6monthlyto 1 year :yes correct/incorrect/don't know

O-HbA1c-if Uncontrolled-3monthly :yes correct/incorrect/don't know

P-foot examination-3monthly/daily by patient:yes correct/incorrect/don't know

Q-Eye examination-annually,3-6monthly if retinopathy :yes correct/incorrect/don't know

R-Serum creatinine assessment- Annually : yes correct/incorrect/don't know
 S-Lipid assessment-annual/6monthly if abnormal : yes correct/incorrect/don't know
 T-Urine albumin-annually :yes correct/incorrect/don't know
 U- Blood pressure measurement-3monthly :yes correct/incorrect/don't know

III. Result

107 subjects satisfying the eligible criteria were enrolled but only 100 subjects were included for the study due to incomplete response of the questionnaire.

Table 1 : showing **age grouping of subjects:**

Age group(years)	No.of subjects
<15	1
15-25	3
26-35	1
36-45	8
46-55	47
56-65	26
66-75	11
>75	3

Chart 1: Indicating gender distribution of subjects:-

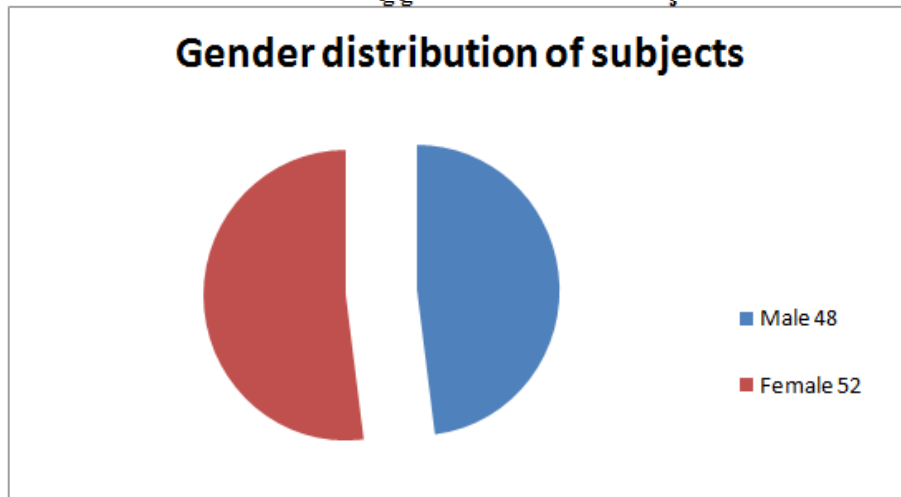


Chart 2: Indicating family history diabetes among the subjects:

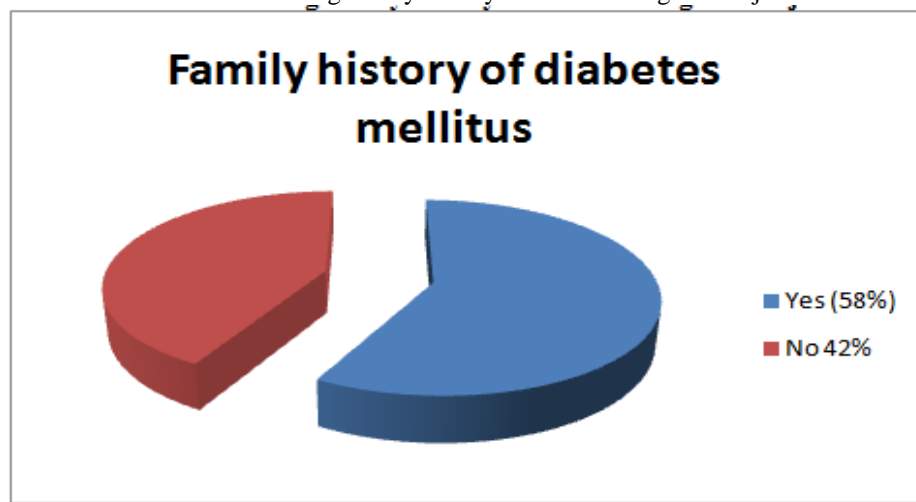


Chart 3: Indicating BMI classification of the subjects:-

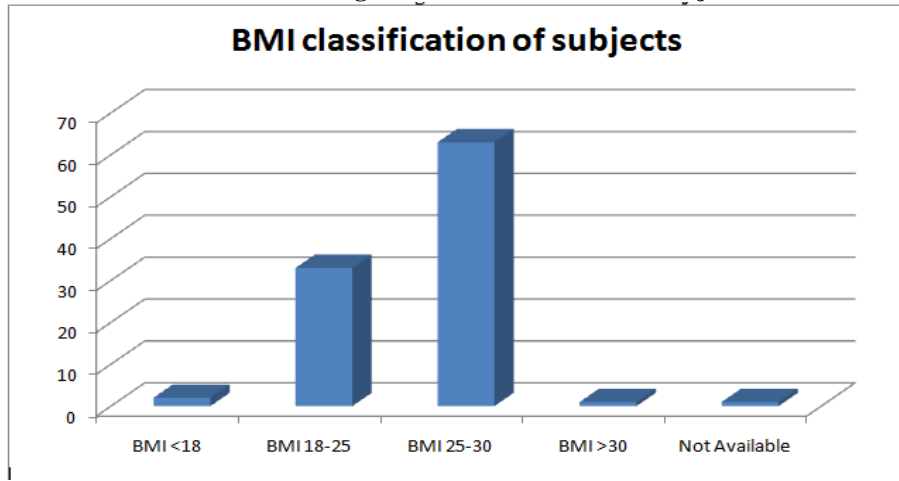


Chart 4: Indicating occupation of subjects

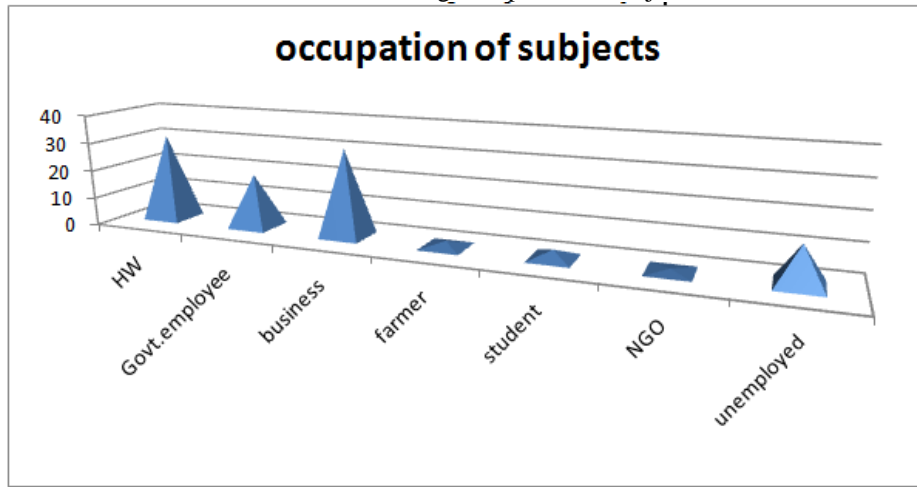


Chart 5: Indicating frequency of presenting symptoms diabetes before sugar testing

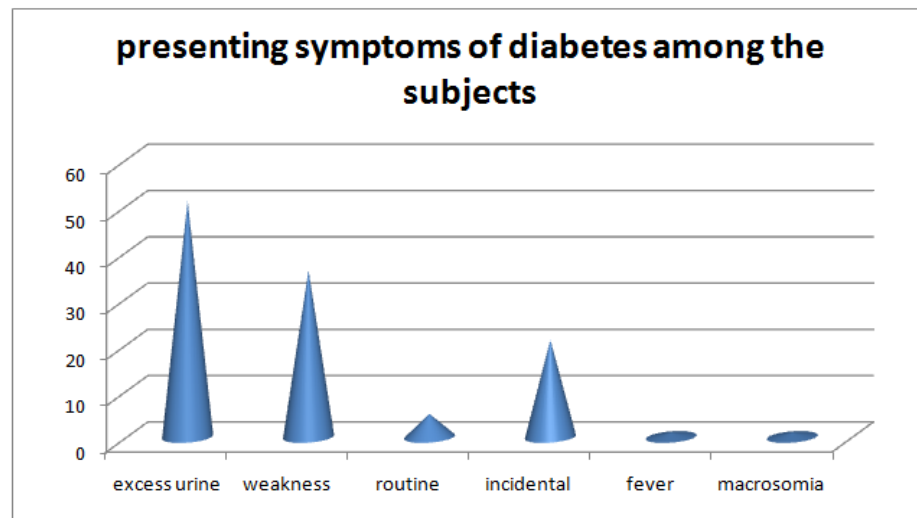


Chart 6: Indicating duration of diabetes before enrolment in the study:

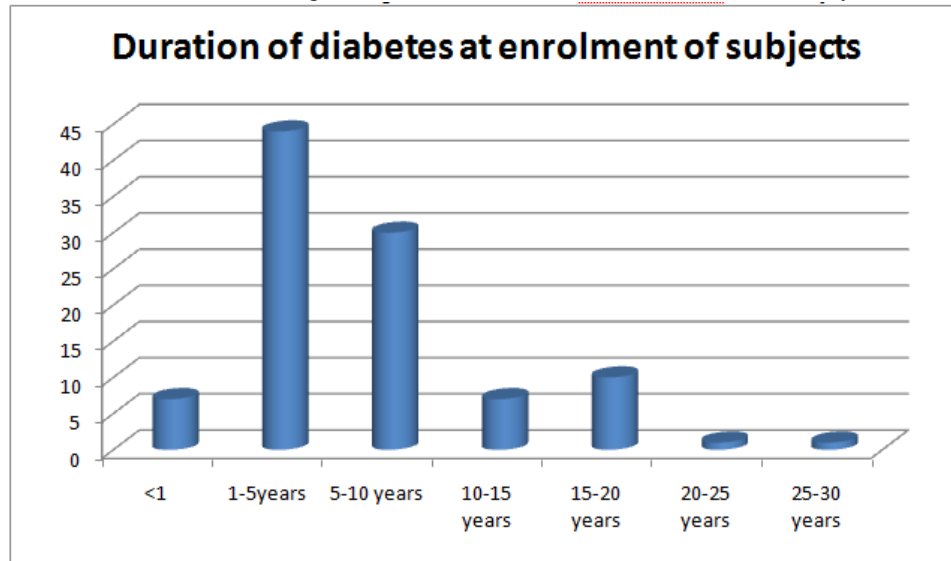


Table 2: showing duration between symptom onset and testing:-

Duration between symptom onset and testing for diagnosis	No. of subjects
N.A (routine, incidental)	26
Weeks	19
Days	23
Months	28
Years	4

Table 3: showing duration between diagnosis and treatment initiation:-

Duration between actual diagnosis and treatment initiation	No. of subjects
Days	76
Weeks	12
Months	11
Years	1

Table 4: showing delay for treatment initiation by subjects:-

Reason for delay in treatment initiation	No. of subjects
Alternative medicine	8
Dietary modification	11
Lack of motivation	7
Lack of time	3
No delay	71

Table 5: indicating individual(s) who suggested for sugar testing:-

Individual who suggested for the diagnostic test	No. of subjects
Self	46
Family members	29
Doctor	21
Friends	4

Table 6: showing sugar level at diagnosis of the subjects:-

Baseline sugar level at diagnosis (mg/dl)	No. of subjects
<150	1
150-250	40
250-350	38
350-450	13
450-550	4
550-650	3
>650	1

Table 7: showing treatment modality adopted by subjects:-

Diabetic Treatment modality adopted	No.of subjects
Oral drugs	48
Oral+Insulin	13
Insulin	21
Alternative +Insulin	4
Diet+lifestyle changes	14

Chart 7: Indicating the co-morbidity of the subjects:

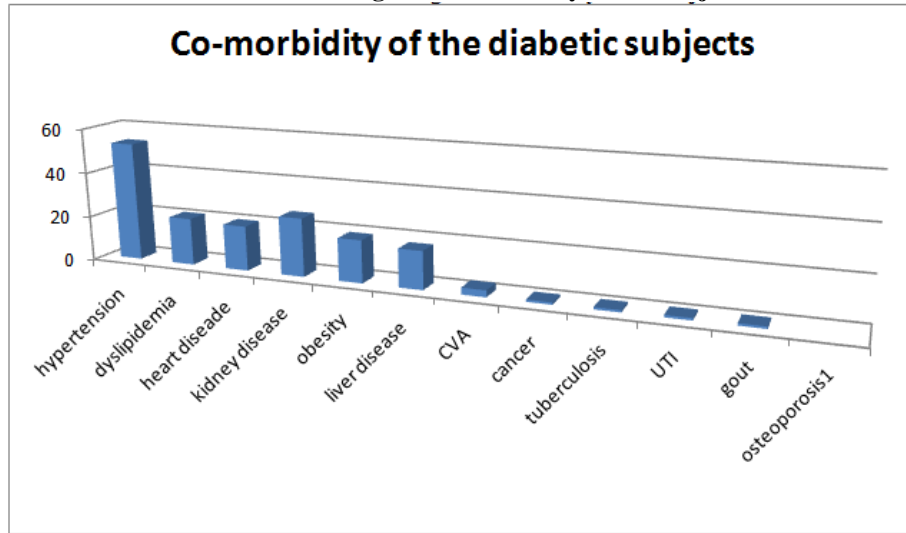


Chart8: indicating the source of knowledge of diabetics:

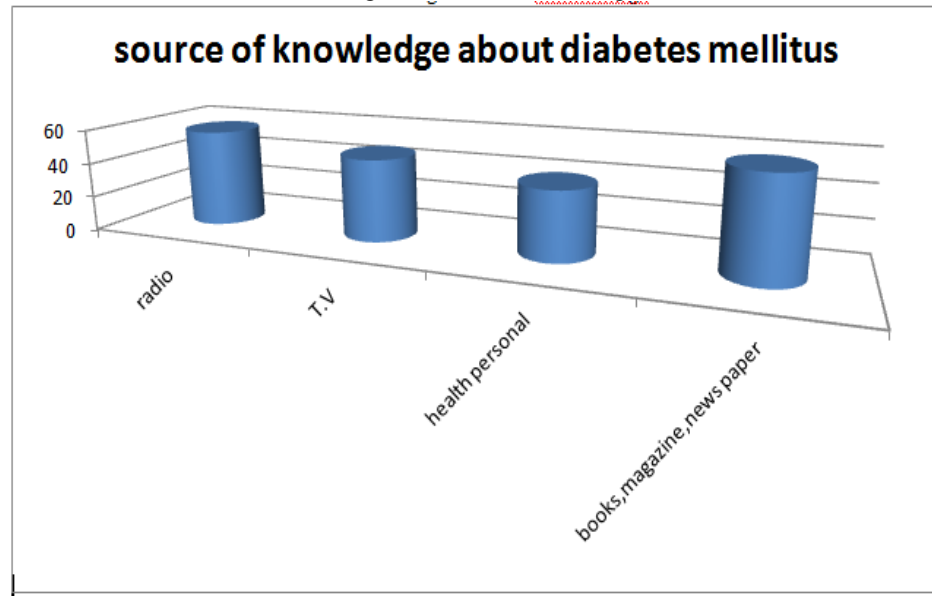


Table 8 : showing knowledge for the need for regular sugar checkup:

Knowledge for need for regular glucose checkup	No.of subjects
Yes need to check up	94
No need to checkup	1
Don't know	5

Chart 9: showing knowledge of target sugar, lipid level:-

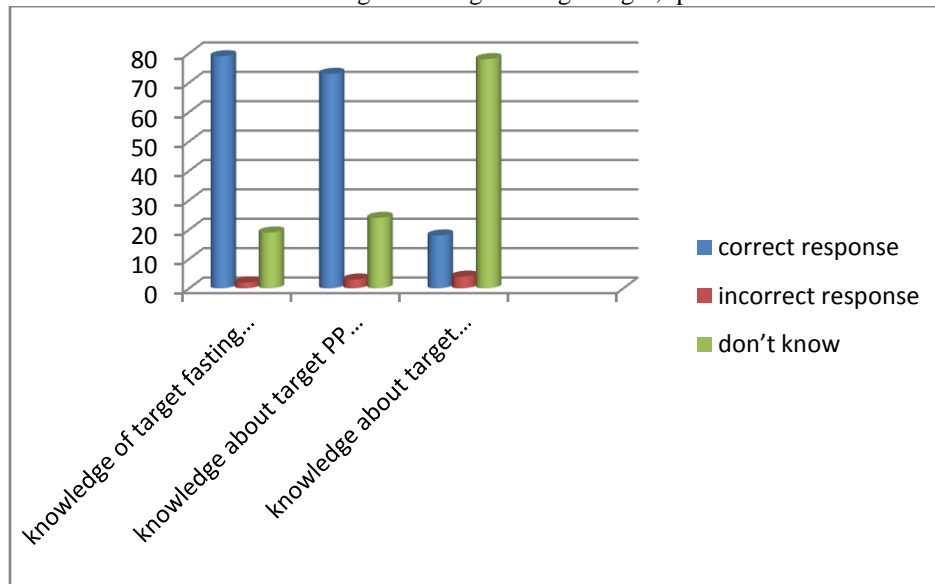


Table 9 : showing knowledge for the need of regular BP check up in DM:-

Knowledge for need for regular BP measurement in DM	No. of subjects
Yes need to follow up	92
No need to follow up	2
Don't know	6

Table 10: showing the knowledge for the need for lipid assessment:-

Knowledge of need for lipid assessment	No. of subjects
Yes need to follow up	41
No need to follow up	5
Don't know	54

Chart 10: showing knowledge level of target TG, LDL and HDL level:-

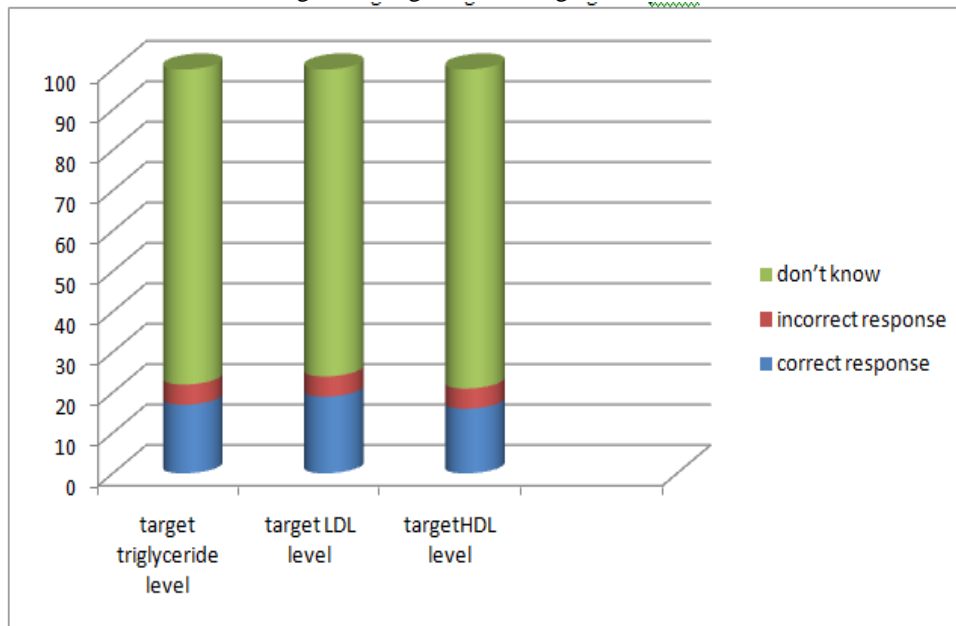


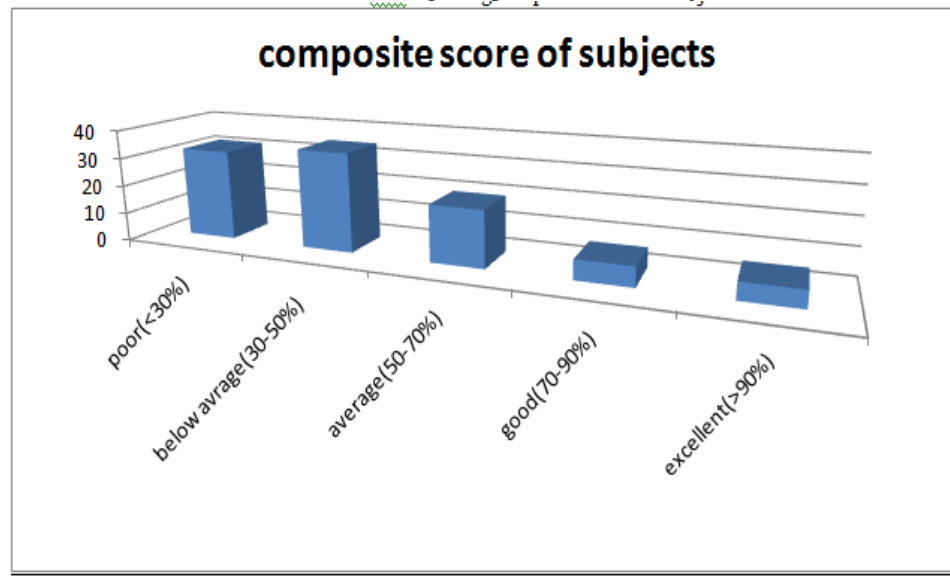
Table 11 : showing knowledge of the need for follow-up examination of other systems:-

Knowledge for need to follow up other systems	No.of subjects
Yes need to follow up	79
No need	3
Don't know	18

Table 12: showing knowledge of follow up schedule:-

Knowledge for follow up schedule	No.of subjects
Blood sugar (for well controlled pts.)	Yes(45),No(2),don't know(53)
Blood sugar (for uncontrolled pts.)	Yes(32),No(2),don't know(66)
HbA1c (for controlled pts.)	Yes(7),No(2),don't know(91)
HbA1c(for uncontrolled pts.)	Yes(7),No(2),don't know(91)
Foot examination	Yes(21),No(11),don't know(68)
Serum-creatinine	Yes(48),No(3),don't know(49)
Urine albumin	Yes(21),No(6),don't know(73)
Eye examination	Yes(34),No(7),don't know(59)
Lipid	Yes(31),No(5),don't know(64)
BP	Yes(73),No(0),don't know(27)

Chart 11 : showing composite score of subjects:



IV. Discussion

Diabetes is a major health problem globally. The complications of diabetes are numerous which could be acute or chronic. Prevention of complications is of paramount importance in the management protocol of diabetes mellitus. Managing a complicated chronic disease such as diabetes mellitus requires a continuous and informed participation and involvement of the patient in the overall management. The meaningful participation of patients can be achieved only when they are well informed about the treatment goal and the recommended follow-up schedule. Patients knowledge on diabetes treatment goal and the required follow-up schedule will help motivate the patients for the optimum control of diabetic status, detect complications at the early stage and thus improve the overall outcome of diabetic patients. In the present study both Male and female are almost equally represented which means diabetes is prevalent in both gender. The strong family history of 52% is paramount suggesting early and frequent testing for sugar status of family members of diabetics. BMI of the subjects indicates an association of overweight in diabetics(63%). Weight management might have a positive impact on the diabetic prevalence. Majority of the subjects belongs to age group 46 to 55 years. This suggest that people of this age group should be assessed for diabetes regularly provided supportive background evidences exist. House wife and business contributes 62% of the subjects and only 19% accounts for government employees. It involves all sections of society ranging from students to farmers and the financial burden imposed on the patient and society is obviously enormous. The study subjects have a good representation of educated population (73%), yet it does not truly transletpositively on the ultimate

composite knowledge level of the subjects. More needs to be done in educating the diabetic patients. Excess urination is the commonest symptom (51%) and incidental diagnosis was made in 21%, therefore the need for extra symptomatic considerations for subjecting to sugar testing to ensure early diagnosis. Duration of months between symptom and actual testing (32%) may be reduced by enhancing awareness. It is encouraging that once diagnosis is made patients (76%) start treatment within days however 24% still don't access treatment in time. This should be targeted by proper educative approach. Majority of the subjects (51%) were diagnosed with sugar level of 250-450mg/dl, a level which is vulnerable to metabolic and other serious adverse complications, therefore efforts are required to enhance awareness for early diagnosis. Hypertension is associated with 53% of the subjects, dyslipidemia in 21%, kidney disease in 26%, heart disease in 20%. This suggests a need for periodic assessment of other systemic involvement. In the present era of development unfortunately in this study 30% patients still do not adhere to regular treatment. 94% subjects are aware that sugar should be followed by regular checkup. However, only 79% knows the target fasting target sugar level, 73% knows target PP sugar level. 78% do not know the importance of HbA1c assessment and the target level. 92% are aware of need for regular BP measurement but only 76% are aware of the target BP and 24% do not know the target BP. Need for lipid measurement is known by 41% but 54% do not know the requirement of lipid assessment. 76% are not aware of target LDL, 79% are not aware of HDL and 78% do not know the target TG level. 79% have the knowledge for the need for regular follow-up schedule. But 53% do not know the 3 monthly sugar examination (in uncontrolled pts.), 66% do not know 6 monthly sugar examination (in controlled pts.), 91% not aware of examination of HbA1c% (for both controlled & uncontrolled), 68% do not know foot examination schedule, 59% do not know Eye examinations schedule, 49% not aware of schedule for examination of serum creatinine, 64% do not know serum lipid examination schedule and 73% are not aware of urine albumin schedule respectively. The overall composite score of knowledge of the subjects is poor (<30%) in 32, below average (30-50%) in 35, average (50-70%) in 20, good (70-90%) in 7 and excellent (>90%) in 6 subjects respectively. Therefore suggesting a strong need for intensifying efforts to educate patients for enhancing knowledge on diabetes with special focus on the target levels and frequency of the examination of other relevant systems. Knowledge influences attitude and over a period of time brings behavior changes. A chronic disease such as diabetes requires a behavioral change. There is paucity of data, at least in this region ascertaining the knowledge level of patients about the treatment goal for which they have been given anti-diabetic measures/therapy. It is also vital to know the awareness of the patients in terms of the recommended follow-up schedule. The outcome of the study could pave the way for formulating viable ways and means to educate and empower patients of diabetes mellitus, thus ensure optimum diabetes treatment outcome. Health education is paramount in dealing with such a disease of epidemic proportion. Knowing the knowledge level of the patients about the basic, yet vital information about diabetes will help the health authority to formulate strategy to enhance the efforts to fight the menace of diabetes and its dreaded complications. This will not only save life but also the national economy. A drug may save a life but an effective education has the potential to save generations.

V. Conclusion

There is a gap between basic understanding of the patients about Diabetes Mellitus and the actual demand for knowledge required to combat the menace of DM. Education is needed to fill up the gap. It should be made mandatory to impart the information at every level of the engagement of the patient with the health care delivery system and if possible at public discourse at large. Empowering patients with the vital knowledge holds the key to fighting the complex and devastating disease called Diabetes Mellitus.

Acknowledgement

Our sincere thanks to the Hospital authority for the kind permission to undertake the study. We also acknowledge the co-operation of the patients for taking part in the study by answering to the responses in the questionnaire. The efforts of PGTs Medicine in the interview of the subjects are worthy of applause.

Declaration

This is to declare that, the article entitled "Assessment of the knowledge of the goal of treatment and follow-up schedule among Diabetic patients: a teaching hospital experience" being submitted is an original work undertaken by the authors. It is also declared that the article is neither been published nor being submitted for consideration for publication to any other journal. We agree with the sequence of the authorship and that, there is no conflict of interest in any manner regarding the authorship of the paper. We do submit full copyright of the paper to your esteemed journal.

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