Medicine

A CROSS SECTIONAL STUDY TO INVESTIGATE CORRELATION BETWEEN NUTRITIONAL STATUS AND INDEPENDENCE IN ACTIVITIES OF DAILY LIVING IN PATIENTS WITH CHRONIC DIABETES.

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ABSTRACT

BACKGROUND- Diabetes mellitus is a clinical syndrome characterised by hyperglycaemia (high glucose) due to absolute or relative deficiency of insulin, or both (i.e. defects in insulin secretion, insulin action or both).The main focus of the study is to identify the lifestyle of the patients, their nutritional status, and their involvement in daily functional activities.

AIM-. To study correlation between nutritional status and independence in activities of daily living in patients with chronic diabete.

OBJECTIVE: Individuals with chronic diabetes face various difficulties in their day to day activity, the objective is to identify nutritional status of people with chronic diabetes and the limitations they face in their day to day activities.

STUDY DESIGN- A cross sectional study design.

METHOD: Subjects were assessed using Diabetes Self Management Questionnaire (DSMQ), Mini Nutritional Assessment and Nottingham Extended Activities Of Daily Living. Thirty (30) individuals both sexes in the age group of 40 to 65 years, suffering from diabetes for 3 years or more and did not engage in daily physical activity were assessed.

RESULT: Individuals with good diabetes management and nutritional status seem to have high level of independence in the activities of daily living.

CONCLUSION: Level of independence in ADL in individuals with chronic diabetes depends on their nutritional status. Malnourished individuals and those at risk exhibit limitations in mobility and leisure

KEYWORDS : Occupational Therapy, Diabetes Mellitus, Nutrition, Activities Of Daily Living

INTRODUCTION:

Diabetes Mellitus is a group of metabolic disorder that results due to excessive sugar in the blood (high blood glucose). Diabetes mellitus is a clinical syndrome characterised by hyperglycaemia (high glucose) due to absolute or relative deficiency of insulin, or both (i.e. defects in insulin secretion, insulin action or both). In 2000, India (31.7 million) topped the world with the highest number of people with diabetes mellitus.

Obesity and overweight are the most important risk factors responsible for diabetes. Many of the diabetic patients burden can be prevented or delayed by behavioural changes favouring a healthy diet and regular physical activity. Standardised scales are used in screening of disability, impairment and handicap both in primary care and in hospital settings. The assessment is done to achieve, maintain or restore an acceptable level of social independence or quality of life.

The main focus of the study is to identify the lifestyle of the patients, their nutritional status, and their involvement in daily functional activities. The study will help us to understand what the limitations are faced by the clients with chronic diabetics, their problem areas, and help us plan strategies to overcome these difficulties. Once it is concluded, the study will help the therapist to plan appropriate therapeutic interventions.

NEED OF THE STUDY:

The patients suffering from chronic diabetes mellitus faces tremendous problems or difficulties in their daily activities which are caused by improper diet/nutrition, lack of physical exercises/activities,

sedentary life style, etc. The purpose of the study is aimed at identifying nutritional status and limitations in ADL faced by patients and possible risks in the coming future of the patients having chronic diabetes mellitus through assessment and screening of patients using standardised scales.

AIM:

To study correlation between nutritional status and independence in activities of daily living in patients with chronic diabetes.

OBJECTIVES:

To Study The Nutritional Effects On Patients With Chronic Diabetes Through The Use Of Mini Nutritional Assessment Scale.

To Study The Effects Of Chronic Diabetes On The Patient's ADL Through The Use Of Nottingham Extended Activities Of Daily Living Questionnaire.

METHODOLOGY :

Thirty patients were included in the study according to the inclusion criteria. Consent was taken from the patients. Each patient was explained about the complete assessment procedure in detail. Assessment with the mentioned scales was done. 30 patients were included in the study, out of which 14 were males and 16 were females. Data was collected and scores were calculated for the individual scale that was administered. Statistical analysis was done of the collected data and results were concluded.

RESULTS AND DATA ANALYSIS:
DEMOGRAPHY
TABLE 1: SCORES OF MININUTRITIONAL ASSESSMENT

MNA	N	MEAN	MEDIAN	STD.DEVIATION	MINIMUM	MAXIMUM	PERCENT
WELL NOURISHED(>=24)	12	25	24.5	1.38169	24	28	40
RISK OF NOURISHMENT(>=17,<24)	17	21.764	22	1.50122	18.5	23.5	56.66
MALNOURISHMENT(<17)	1	11	11	0	11	11	3.33
TOTAL	30	22.7	23.25	3.06425	11	28	100.0

Table 1: It shows the demographic score for the MNA; the mean & standard deviation for 40% well-nourished patients are 25 & 1.38169 respectively;

the mean & standard deviation for 56.66% at risk of malnutrition

patients are 21.764 & 1.50122 respectively; the mean & standard deviation for 3.33% malnourished patients are 11 & 0 respectively. :
It shows the percentage of the patient's nutrition based on the score of MNA scale. Out of the total (N=30) patients 40% are 'well nourished'; 56.66% are at 'risk of malnutrition'; 3.33% are 'malnourished'.

CORRELATION BETWEEN DIFFERENT VARIABLES
Table 2: All Correlations

		MNA	ADL
MNA	r'	–	0.5049
	p'	–	0.0044
	N	30	30
ADL	r'	0.5049	–
	p'	0.0044	–
	N	30	30

Table 6: It shows that the correlation between MNA and ADL is significant as p value is <0.05. If P value is (<0.05) then it is significant. If p value is (>=0.05) then it is not significant.

CORRELATION BETWEEN N-EADL& MNA SCALE:

		MOBILITY	KITCHEN	DOMESTIC	LEISURE
MNA	r'	0.64371	0.23954	0.26421	0.42348
	p'	0.000124	0.20233	0.15827	0.019705
	N	30	30	30	30

It shows that the correlation between MNA & N-EADL sub scales; in which mobility & leisure task is significant as P value is <0.05; & kitchen & domestic task were not significant.

DISCUSSION:
Long term complications of diabetes include cardiovascular complications (hypertension, myocardial infarction), diabetic retinopathy, diabetic nephropathy and diabetic neuropathy. The patients suffering from chronic diabetes mellitus face difficulties in their daily activities which are caused by improper diet/nutrition, lack of physical exercises/activities, sedentary life style, etc. The aim of the study is to identify nutritional status, limitations in ADL and the risks that the patient is exposed to, which is done through assessment and screening of patients with chronic diabetes using standardised scales.
Hence, we conducted a study in which 30 patients were randomly selected based on the inclusion and exclusion criteria. In this study DSM-Q, MNA and N-EADL scales were administered for screening and assessment to identify the limitations in the functional activities based on their nutrition and diabetes self-management.

One of the studies done by Schmitt A, Reimer A, Hermanns N, Huber J, Ehrmann D, Schall S, et al. supports the DSMQ as the preferred tool when analysing self-reported behavioural problems related to reduced glycemic control. The scale may be useful for clinical assessments of patients with suboptimal diabetes outcomes or research on factors affecting associations between self-management behaviours and glycemic control. Therefore, DSM-Q is used as a screening tool in our study.

Other study by Emanuele Cereda supports present study. This study suggests that mini nutrition assessment is a good predictor of functional status in institutionalised elderly at risk of malnutrition.

There is an inter-relationship between malnutrition and decline of activities of daily living. Thus, the decline in the nutritional status might be considered first event progressing leading to the need of care. Along with this and auto sustaining vicious cycle may be also hypothesised. In fact, a decreased nutritional intake may lead to muscle mass wasting and reduce independence in activities of daily living and then malnutrition.

Our findings in Mini Nutritional Assessment, the scale shows following demographic data in Table.1
- Mean and standard deviation for 40% well-nourished patients is 25 and 1.38169 respectively
- Mean and standard deviation for 56.66% at risk of malnutrition patients is 21.764 and 1.50122 respectively
- Mean and standard deviation for 3.33% of malnourished patients is 11 & 0 respectively
- Also In table1 the nutritional based scores for Mini Nutritional Assessment reveal the following:
- Out of the total (N=30) patients 40% are 'well nourished'; 56.66% are at 'risk of malnutrition' and 3.33% are 'malnourished'

These findings are due to small sample size and also the economic status of the population impacts the health and nourishment of population.

In the consistence with the above study mentioned, we found similar results. Our study revealed that correlation between Mini Nutritional Assessment and Nottingham extended activities of daily living questionnaire shows the 'p' value as 0.0044 hence the correlation is significant and has satisfied the alternate hypothesis.

Additional findings of the study give correlation between Mini Nutritional Assessment and sub components of Nottingham extended activities of daily living questionnaire which shows that mobility and leisure tasks have significant correlations as the 'p' value is <0.05. Whereas, the kitchen and domestic task show no significant correlation. This is because the mobility and leisure tasks are dependent on patients nutrition.

CONCLUSION
Conclusion of our study is, there was significant correlation between Nutritional status and Independence in ADL in chronic Diabetic patients. Therefore, patients at risk and malnourished patients shows affectations in leisure and mobility.

LIMITATION
Population between the age group of 40-65 were considered for the study.

The study was carried out only in diabetic OPD in D.Y. Patil Hospital, Nerul, Navi Mumbai

FUTURE SCOPE
This study can be carried out in larger population to get a over view about the patients limitations in functional activities which affects their occupational performance. It can also be helpful for planning an intervention to manage their diabetes self-care efficiently and also to improve their occupational performance.

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