

Medication Skipping Pattern among General and Rotation Shift Workers in Tertiary Care Hospital in Chennai, India

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ABSTRACT

The present study explores the medication skipping habit which includes both Oral Antidiabetic Drugs (OAD) and insulin among General and Rotation shift diabetic patients in a tertiary care hospital in Chennai. About 200 diabetic subjects were randomly selected based on the inclusion criteria and were briefed out about the study. After obtaining the consent, an interview schedule was used to collect information on OAD, Insulin intake of the study participants. Later the raw data underwent statistical analysis and the results were interpreted. About 34.5% of the subjects were skipped the medication. Among them 58% and 42% were Rotation and General shift workers respectively. About 75% and 59% of the rotation shift workers skips medication daily and on alternate days. 'Forget to take medication' and 'unavailability of the medication' were the major reasons shared by the participants to skip medication. The study concludes that rotation shift workers were more prone to medication skipping than the General shift workers. Thus it is essential to create additional awareness among the Rotation shift workers to continue the medication regularly to maintain the blood glucose level and to prevent diabetic related micro and macro vascular complication.

Keywords: Insulin, Oral Antidiabetic Drugs, Medication skipping, Diabetes, Rotation shift, General shift

INTRODUCTION

Diabetes is a chronic condition that requires continuing medical care, patient

self-management and education to prevent acute complications and to reduce the risk of long-term complications. Epidemiological studies from India and international bodies have raised alarm on diabetes prevalence. Current global prevalence of 366 million is expected to rise to 552 million (51% increase) by 2030. More than 60% of world's population with diabetes comes from Asia of which two nations; India and China contribute the largest¹.

The burden of diabetes increases due to the associated micro- and macro-vascular complications. India and China have the highest number of people with diabetes and cardiovascular diseases, one of the leading causes of threat to public health². The burden of diabetes complications affects the productive younger age group in developing countries, which has serious economic implications. Prevalence of diabetic retinopathy, microalbuminuria and peripheral neuropathy from the Chennai Urban Rural Epidemiological Study were 17.6%, 26.9% and 26.1% respectively¹.

Adherence to medication, especially insulin is a key contributor to diabetes treatment outcome. Poor adherence results in worse glucose control and increased hospital admissions of patients due to diabetes complications³. Factors like medication costs, regimen complexity, patient's emotional well-being, and patient's perceptions of medication side effects and medication-related intrusions on activities of

daily living are associated with adherence to any diabetes medication⁴. It is known that early insulin initiation is needed for tight glycemic control and delay in the onset of complications. Patients feel using insulin therapy is inconvenient due to its interference with eating, exercise and daily routines and dissatisfaction associated with hypoglycemia, injection pain, time required to administer, and embarrassment⁵.

Pain, inconvenience and financial constraints along with low knowledge of diabetes and low rate of physician recommendation influence the use of self-monitoring devices by patients. Taken together, these concerns contribute to delay in insulin initiation and intensification, which lead to poor glycemic control and occurrence of secondary complications⁶.

Studies report that in India a substantial percentage of patients are unaware of diabetes condition (~25%), risk factors (obesity and physical inactivity) and secondary complications of diabetes (~60%). Further almost half of the patients are unaware that good glycemic control would help to avoid complications related to diabetes. In a study, only 7.6% patients were aware of HbA1c testing for the diagnosis of diabetes in year 2000 and 21.7% in the year 2006 while only 10.3% of patients reported receiving diabetes self-management education, 20-30% respondents reported not being up-dated about new information and developments on diabetes⁷.

There is a need to increase the awareness of public and physicians on modern medicinal care like insulin analogues and the harmful effects of dependence on alternate and complementary medicine for patients with diabetes. A strategy utilizing both conventional (dramas, skits, newspaper, TV etc.) and non-conventional (internet, short message service, mobile phone apps etc.) modes of communication must be adopted to maximize the reach of diabetes education programs. Diabetes awareness programs conducted through community involvement have reported improved awareness about

diabetes and its complications in a South Indian city⁸. Cost effectiveness of telemedicine based multi-disciplinary care in achieving glycemic targets and providing continuous education may be considered.

METHODOLOGY

A cross sectional study was conducted among 200 diabetic patients who visited a tertiary care hospital in Chennai city. After obtaining permission from the hospital authority, about 100 General shift workers and 100 Rotation shift workers were randomly selected for the study based on the inclusion criteria. Both male and female subjects were selected, subjects those who were on OAD or insulin or both were selected. Only subjects who were working were selected for the study. Pregnant and lactating women, subjects who were only on meal plan, subjects who have any other complication such as renal, cardiac were excluded from the study. After the selection of the subjects, based on the inclusion criteria, the subjects were briefly described about the study and the purpose and written consent was obtained from the participants to take part in the study. An interview schedule was used to collect the background information of the subjects and medication skipping pattern of the subjects. This includes OAD skipping and insulin skipping pattern and frequency. After collecting the raw data from the subjects, the obtained information was coded and statistically analyzed and the results were interpreted.

RESULTS AND DISCUSSION

Table-1 OAD/Insulin Skipping

OAD/ Insulin Skipping	General shift N=100	Rotation shift N=100	Total N=200
Yes	29 (42%)	40 (58%)	69 (34.5%)
No	71 (54%)	60 (46%)	131 (65.5%)

In the present study, about 34.5% subjects reported to skip the prescribed OAD and insulin. Among them, 42% belong to General shift and 58% were rotation shift workers. It is clearly understood that rotation shift workers were more prone to

OAD and insulin skipping than the General shift counterparts.

Table-2: Frequency of OAD/ Insulin skipping

Frequency of OAD / Insulin skipping	General shift N=100	Rotation shift N=100	Total N=200
Never	71 (54%)	60 (45%)	131 (65.5%)
Daily	2 (25%)	6 (75%)	8 (4%)
Alternate days	7 (41%)	10 (59%)	17 (8.5%)
Once a week	6 (60%)	4 (40%)	10 (5%)
Twice a week	-	1 (100%)	1 (0.5%)
Thrice a week	9 (29%)	22 (71%)	31 (15.5%)
Rarely	2 (100%)	-	2 (1%)

Frequency of OAD and insulin skipping is more among Rotation shift workers than the General shift workers. About 75% rotation workers skip daily whereas only 25% of General shift workers skips daily. About 41% and 59% of General and Rotation shift workers skips medication. About 71% and 29% of Rotation and General shift workers skips medication thrice a week. About 60% and 40% of General shift and Rotation shift workers skips medication once a week. Only two General shift subjects skip medication rarely.

Table-3: Reasons for OAD/Insulin skipping

Reasons for OAD and Insulin skipping	General shift N=100	Rotation shift N=100	Total N=200
Never	71 (54%)	60 (46%)	131 (65.5%)
Dislike medicines	1 (50%)	1 (50%)	2 (1%)
Forget to take	12 (46%)	14 (54%)	26(13%)
No time to take	6 (40%)	12 (60%)	15 (7.5)
Side effects	3 (60%)	2 (40%)	5 (2.5%)
Unavailability	7 (39%)	11 (61%)	18 (9%)

When the reasons for medication skipping were analyzed, about 13% of the subjects (46% general shift workers and 54% rotation shift workers) reported 'forget to take medication'. 'Unavailability of the medication' was reported by 9% of the study participants (39% General shift workers and 61% rotation shift workers). About 7.5 % (40% General shift workers and 60% rotation shift workers) mentioned no time to take medication. Only about 2.5% reported medication side effects as the reason to skip OAD and insulin. Among them 60% were General shift workers and 40% were Rotation shift workers

respectively. About 53% and 47% of General and Rotation shift workers perceived as bad health. About 67% perceived themselves of having better health. Among them 52% and 48% were General and Rotation shift workers respectively. About 21.5% mentioned fair health with 39.5% of General shift workers and 60.5% of Rotation shift workers.

CONCLUSION

Diabetes mellitus requires multiple approaches which include Medical Nutrition Therapy, medication and life style modification to control glycemic levels. Improper food intake, irregular medication pattern, and change in circadian rhythm resulted in poor glycemic control. Subjects working In Rotation shift are more prone to the above changes than their General shift counterparts. Among the shift workers, the adherence to the above medical regimen is very poor than the General shift workers. The present study clearly stated that Rotation shift diabetic workers tend to skip OAD and insulin due to their work pressure,

Table-4: Self Assessment on Health

Self Assessment	General shift	Rotation shift	Total
Bad	9 (53%)	8 (47%)	17 (8.5%)
Better	70 (52%)	64 (48%)	134 (67%)
Fair	17 (39.5%)	26 (60.5)	43 (21.5%)
Good	4 (66.6%)	2 (33.4%)	6(3%)

When the study participants were asked to mention about the self assessment on their health, only 3% perceived to be of good health. Among them 66.6% and 33.4% were General and Rotation shift workers

irregular work timing and sleep pattern. Since India is the Diabetic capital of the world, this is high time to educate our workers regarding glycemic control, insulin and OAD intake. Patient education and medication are important component of diabetic care regimen. Employer should be insisted to provide break time to all diabetic workers to consume food and medication. Policies should be framed by the Government to improve the health care of the diabetic work force in order to prevent morbidity and mortality among the Indian work force. Collaborative regimen should be followed between Government and the Employer for the welfare of the employees who is in the other words 'the pillar of the nation'.

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