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## EFFECT THE PROVIDER - PATIENT COMMUNICATION (PPC) ON KNOWLEDGE REGARDING HYPOGLYCAEMIA AMONG DIABETES MELLITUS PATIENTS

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### ABSTRACT

Hypoglycemia is a dangerous consequence of diabetes. All diabetes patients should be aware of how to recognize hypoglycemia and how to treat it immediately so that treatment of hypoglycemia is not delayed, hospitalization is avoided, and life-threatening consequences from hypoglycemia are avoided. The aim of the present study is to assess effect the Provider - Patient communication (PPC) on knowledge on hypoglycemia among DM patients. A quasi experimental study design was adopted and initial 100 patients who attended the OPD were selected as control group and the pre and post-test were conducted as per protocol. The next 100 patients were selected for study group and pre-test, PPC and post test was conducted and both results were compared. After PPC, 71% of the study group had adequate level of knowledge compared to 4% in the pre-test. The pre-test mean score of knowledge of study group was  $8.87 \pm 1.85$  and the post-test mean score of knowledge was  $23.71 \pm 4.12$ . The mean improvement score was 14.48 and the paired 't' value of  $t = 18.637$ , which was found to be statistically highly significant at  $p < 0.001$  level. The study concludes that the DM patients should be given adequate knowledge regarding recognition and management of hypoglycaemia.

### KEYWORDS

Diabetes mellitus, Hypoglycemia and Patient - provider communication.

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### INTRODUCTION

Diabetes Mellitus (DM) is a major global health issue which is a metabolic illness with a variety of etiologies that is characterized by chronic hypoglycaemia and disruptions in carbohydrate, lipid, and protein metabolism. A rise in blood glucose levels is known as hyperglycaemia and

hypoglycaemia is when blood glucose levels are lower than normal. Hypoglycaemia is a state characterized by sweating, tremor, tachycardia, palpitation, nervousness, hunger, slurred speech, emotional changes, confusion, double vision, drowsiness, sleeplessness, and often self-diagnosed<sup>1-3</sup>.

Glycaemia control is inadequate when there are frequent episodes of hypoglycaemia and the accompanying hormonal counter-regulatory response. It's also possible that the former is linked to cardiovascular and cerebrovascular morbidity. Hypoglycaemia unawareness can develop over time as a result of recurrent episodes of hypoglycaemia. Shakiness or irregular heartbeats are no longer produced by the body or brain as warning indications of low blood sugar. When this happens, the chances of developing severe, life-threatening hypoglycaemia rise.

Large trials have shown that patients with hypoglycaemia have a higher mortality rate<sup>4,5</sup>. As a result, the American Diabetes Association (ADA) guidelines emphasize, individualizing targets and reducing the risk of hypoglycaemia in patients with long-term diabetes and comorbidities<sup>6</sup>. Hypoglycaemia manifests itself in a variety of ways. The symptoms may be generic, and their severity decreases with age. As a result, it is critical that the subjects be able to recognize and identify the development of symptoms at an early stage in order to successfully manage the episode and take efforts to prevent recurrence.

Patients who lack the ability to detect all of these signs are more likely to receive delayed care, which can result in mortality. Because the brain is dependent on blood glucose, the individual may be unaware of hypoglycaemia due to a lack of information about the symptoms which can lead to brain injury, seizures, and loss of consciousness and cannot survive more 6 min without glucose. For this reason, this study was undertaken to assess effect the Provider - Patient communication (PPC) on knowledge regarding hypoglycaemia among patients with diabetes mellitus.

## MATERIAL AND METHODS

In this study, a quasi experimental study design was adopted to assess the effect of Provider - Patient communication (PPC) on knowledge regarding hypoglycaemia among patients with diabetes mellitus. By purposive sampling technique, 200 patients with diabetes mellitus, who attend the diabetic clinic of a tertiary care hospital, were selected. Initial 100 patients who attended the OPD were selected as control group and the pre and post-test were conducted as per protocol for the control group. The next 100 patients were selected for study group. For the study group, pre-test, PPC and post test was conducted and the results were compared. The data collected by a self structured questionnaire on demographic data and knowledge regarding general signs and symptoms, management and prevention of hypoglycaemia. The investigators took written consent from the patients by explaining the purpose of the information and the institutional ethical approval was obtained before the conduct of the study. The control group was given printed guidelines of PPC on hypoglycaemia after completion of the study for ethical reasons.

## RESULTS AND DISCUSSION

In the present study, in the pre-test, most of the patients 89(89%) had inadequate knowledge regarding hypoglycaemia whereas in the post test after administration of PPC on knowledge regarding hypoglycaemia, 18(18%) had moderately adequate level of knowledge, 11(11%) had inadequate level of knowledge and 71(71%) had adequate level of knowledge (Table No.1). This shows that after PPC, the knowledge level of the DM patients on hypoglycaemia increased significantly. There was a similar findings given by the study conducted by Kapoor N *et al*, (2017) which showed that 25.5% of DM patients had good knowledge in hypoglycaemia prevention as well as 51.7% patients had poor knowledge in recognizing symptoms of hypoglycaemia<sup>7</sup>. So, it is mandatory to give adequate education to the DM patients on the recognition and management of hypoglycaemia whenever there is a change of meeting the patient with the provider of the health care. This eventually may reduce the

morbidity and complications related to hypoglycaemia.

In the present study findings, the pre-test mean score of knowledge of study group was  $8.87 \pm 1.85$  and the post-test mean score of knowledge was  $23.71 \pm 4.12$ . The mean improvement score was 14.48 and the paired 't' value of  $t = 18.637$ , which was found to be statistically highly significant at  $p < 0.001$  level. This indicates that the PPC on knowledge regarding hypoglycaemia administered to DM patients improved their level of knowledge. The findings of this present study are supported by few studies which conclude that after the teaching intervention, the knowledge and practice of DM patients on self care management and hypoglycaemic control improved. Hence, the health care professionals need to take every opportunity to improve the knowledge and skills on self care management of DM patients so that we can reduce the mortality and morbidity among DM patients<sup>8-10</sup>.

In the present study, the demographic variables such as age, income and dietary habits had a statistically significant association with post-test level of knowledge on hypoglycaemia at  $p < 0.05$  level ( $\chi^2 = 11.147$ , d.f=6,  $p = 0.013$ ), ( $\chi^2 = 9.08$ , d.f=3,  $p = 0.01$ ) and ( $\chi^2 = 7.160$ , d.f=3,  $p = 0.014$ ). It is supported by a study on knowledge of hypoglycaemia and its associated factors among type 2 diabetic patients. The study results showed that age, education and economic status were associated with knowledge whereas gender and duration of disease were not related with knowledge on hypoglycaemia<sup>5</sup>. Thus, as the patients gets older, who have adequate income and good dietary habits may have better understanding of the disease and adequate self care management on diabetes mellitus.

**Table No.1: pre-test and post test level of knowledge regarding hypoglycaemia among study group**

S.No	Knowledge	Inadequate (6 – 20)		Moderately Adequate (21-34)		Adequate (35 – 49)	
		No.	%	No.	%	No.	%
1	Pre-test	89	89	7	7	4	4
2	Post-test	11	11	18	18	71	71

**Table No.2: Pre-test and post test level of knowledge scores regarding hypoglycaemia among DM patients**

S.No	Knowledge	Group	Mean	S.D	Mean difference score	Student Independent 't' Value
1	Pre-test	Study	8.87	1.85	2.36	t = 0.691 p = 0.43 N.S
		Control	6.51	1.21		
2	Post-test	Study	23.71	4.12	14.48	t = 18.637 p = 0.001 S***
		Control	9.23	1.59		

## CONCLUSION

Hypoglycaemia can be caused by a variety of factors, including medication changes or overdoses, infection, dietary changes, and changes in exercise levels. Hypoglycaemia must be diagnosed and treated as soon as possible in order to keep diabetes under control. Hence, it's crucial to educate the DM patients regarding the recognition and management of hypoglycaemia through PPC whenever the patient meets a health care provider to reduce the complications of the same.

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## DECLARATION OF CONFLICTING INTEREST

The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

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