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Narisetti Sindhura. Dasari Niroosha
PharmD student, Vignan College of Pharmacy
Vadlamudi, Andhra Pradesh India
sindhuranarisetti111@gmail.com

Narisetti Sindhura[1], Dasari Niroosha[1], Murikipudi Lakshmi Sushmitha[1],Velavarthipati Prudhvi Sai[1], Bharani Bellam[2], M. Satyavathi[1], Satheesh Gottipati[1]

[1]Department of Pharmacy Practice, Vignan Pharmacy College,Vadlamudi,Guntur-522213;
[2]Department of Endocrinology, Ramesh Cardiac and Multi specialty hospital, Guntur-522004

AN OBSERVATIONAL STUDY ON HYPOGLYCEMIC EVENTS IN PATIENTS WITH DIABETES MELLITUS IN A TERTIARY CARE HOSPITAL

INTRODUCTION

Diabetes Mellitus (DM) is probably one of the oldest diseases known to us and is rapidly emerging as an important cause of mortality and morbidity in developing countries. The number of persons affected by Diabetes continues to increase worldwide.[1] It is a combination of heterogeneous disorders commonly present with an episode of hyperglycemia and glucose intolerance, because of lack of Insulin, defective action, or both.[2] People living with Type 2 DM are vulnerable to various forms of both short and long-term complications, which often lead to their premature death. The complications associated with Type 2 DM patients reduce both life expectancy and quality of life.[3]

OBJECTIVES

The objectives of our study are to know the causes of hypoglycemic episodes, pattern of hypoglycemic events and therapies associated with those events and to create awareness about hypoglycemia.

MATERIALS AND METHODS

It is a retrospective, prospective observational study, duration is 6 months carried in the Department of Endocrinology, Ramesh Hospitals, Guntur, Guntur Dt., Andhra Pradesh, India. Our study population is 100 patients of either gender selected based on the inclusion and exclusion criteria.

INCLUSION CRITERIA

The criteria includes both genders of patients who are willing to participate in the study**,** Patient's age between 18 to 85 years**,** who are having diabetes mellitus along with other complications**,** and who are on anti- diabetic therapy

EXCLUSION CRITERIA

The criteria includes patients who are not willing to participate in the study**,** with age less than 18 or more than 85 years; pregnant and lactating women are excluded from study.

STUDY PROCEDURE

Clinical data of 100 diabetic patients with hypoglycemic events taken from the tertiary care hospital from the Department of Endocrinology meeting the criteria of diabetic patients receiving therapy. The cause for hypoglycemia evaluated and documented. Further, the patients were counselled, and patient information leaflet is provided.

RESULTS

Participants involved in the study

Participants	Percentage (%)
Retrospective Participants	72
Prospective Participants	28
Prospective Patients Unaware of Hypoglycemia	78.6
Prospective Patients Aware of Hypoglycemia	21.4

Gender	# of Patients	Percentage (%)
Male	81	81
Female	19	19

Severity of hypoglycemia

Severity	# of Patients	Percentage
Mild	92	66.6
Moderate	33	23.9
Severe	13	9.4

Drug wise distribution of hypoglycemia

Drugs	# of prescriptions	Hypoglycemic events
Insulin analogues	51	72
Oral hypoglycemic agents	42	54

Insulin Analogues wise distribution of Hypoglycemia

Insulin analogues	# of prescriptions	Hypoglycemic events
Insulin isophane	32	42
Insulin actrapid	11	05
Insulin glargine	8	03

Oral Hypoglycemic Agents wise distribution of Hypoglycemia

Oral hypoglycemic agent	# of prescriptions	Hypoglycemic events
Glibenclamide	34	42
Glimepiride	31	27
Glipizide	10	4
Gliclazide	3	1

DISCUSSION

Glibenclamide is associated with hypoglycaemia more frequently when compared with other sulfonylureas, and it is a significant medical concern in the type II diabetic geriatric population. Moreover, it should be used with caution in elderly patients. Ageing alters the pharmacokinetic and pharmacodynamic properties of glibenclamide, and a lower elimination rate with a higher volume of distribution and free fraction is observed.

RESULTS

In this study male participants are more in number than female suggesting that males may be prone to hypoglycemia. Among the prospective participants, 72.6% do not have knowledge regarding hypoglycemia. Patients with highest incidence of hypoglycemic incidence belong to the age group 65-75 years. Most of the study subjects had mild Hypoglycemia (66%), while the remaining 23.9% and 9.4% had moderate and severe. The highest number of participants were hypoglycemic at 2am-3am, and at 6am-7am. Maximum number of patients had only one hypoglycemic episode. The most hypoglycemic episodes are found in the patients receiving anti-diabetic therapy like insulin analogues and oral hypoglycemic agents such as sulphonylureas. Among patients

receiving Insulin analogues like Insulin Isophane and sulphonylureas like Glibenclamide showed more hypoglycemic episodes compared to other agents.

CONCLUSION

In our study, 18.11% are prone to hypoglycemia during 2am-3am followed by 15.21% during 6am-7am. So careful observation is required during these time periods. In our study, 78.6% were unaware of the phenomenon of hypoglycemia although they experience it frequently. Therefore, we provided Patient Information Leaflet (PIL) and counseled them. Individuals receiving Glibenclamide and Insulin isophane need to be monitored regularly due to their higher risk to Hypoglycemia.

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Conflict of interest

None declared

Ethical approval

The study was approved by the hospital ethics committee.

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