Prevalence and correlates of severe hypoglycaemia among patients with youth onset diabetes in India

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Background

Hypoglycaemia is the most common acute complication in type 1 diabetes. It may also occur in type 2 diabetes when treatment includes insulin or insulin secretagogues. The threat of incidence of hypoglycaemia is the limiting factor for intensive glycaemic control in diabetes management.

Objectives

- ❖ To estimate the burden of hypoglycaemia in patients with youth onset type 1 and type 2 diabetes
- ❖ To identify the risk factors of severe hypoglycaemia in youth onset diabetes

Methods

- ❖ A cross sectional study was conducted among patients with youth onset type 1 and type 2 diabetes registered at the All India Institute of Medical Sciences (AIIMS), New Delhi and Madras Diabetes Research Foundation (MDRF), Chennai centres of the registry of people with youth onset diabetes in India (YDR).
- ❖ The patients who attended the above clinics between 1st July 2013 and 31st July 2015 were invited to participate in the study.
- ❖ History of hypoglycaemia was captured using a structured questionnaire and the categories were defined as per the American Diabetes Association's hypoglycaemia working group recommendations.
  - **Probable symptomatic hypoglycaemia:** History of typical symptoms of hypoglycaemia (palpitations, tremor, hunger, or sweating) in the past one year
  - **Severe hypoglycaemia:** History of hypoglycaemia episodes in which patients needed assistance from other persons during the preceding year
- ❖ Self-care activities [physical activity (30 minutes of moderate to vigorous activity per day), adherence to diet plan and self-monitoring of blood glucose (SMBG)] were assessed using the Summary of Diabetes Self-Care Activities (SDSCA) questionnaire, which is a brief questionnaire that asks how many days per week an activity was performed.

Results

- ❖ The prevalence of probable symptomatic hypoglycaemia in type 1 and type 2 diabetes patients, who attended two tertiary care hospitals in India, was 50.8 % and 45.5% respectively.
- ❖ The prevalence of severe hypoglycaemia was significantly higher among type 1 diabetes patients (13.4%) compared to type 2 diabetes (3.4%) (Figure-1)

- ❖ The factors associated with severe hypoglycaemia in type 1 diabetes patients were: irregular self-monitoring of blood glucose and non-adherence to the prescribed weekly diet plan (Table-1).
- ❖ The study was not adequately powered to analyse the risk factors of hypoglycaemia in patients with youth onset type 2 diabetes.

Figure-1: Prevalence of hypoglycaemia in type 1 and type 2 diabetes

Table-1: Risk factors of hypoglycaemia in type 1 diabetes

Factor	Adjusted odds ratio (95% CI)	P value
Current age (1 year)	1.0 (0.9, 1.02)	0.8
Gender		
Female	Ref	0.1
Male	1.6 (0.9, 2.8)	
Adherence to diet plan (seven days per week)		0.003
Yes	Ref	
No	2.5 (1.4, 4.0)	
Regular self-monitoring of blood glucose		<0.001
Yes	Ref	
No	4.5 (2.1, 9.5)	

Conclusions

- ❖ There is high burden of symptomatic hypoglycaemia among patients with youth onset type 1 and type 2 diabetes from India.
- ❖ This study highlights the importance of educating patients with youth onset diabetes and their families in terms of hypoglycaemia