Impact of hypoglycaemic events on healthcare resource use in type 2 diabetes patients

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OBJECTIVE

The objective of this study was to quantify the impact of hypoglycaemic events on healthcare resource use (HRU) in people with type 2 diabetes.

METHODS

Data on diabetes-related healthcare resource use were obtained from the 5th wave of the IMDPS which included patients from Africa, Eurasia, Middle-East, South Asia and Turkey. The following definitions of HRU due to hypoglycaemia were used:

Healthcare resource use due to hypoglycaemia

HRU due to hypoglycaemia included emergency room (ER) visits due to hypoglycaemia in the past 6 months and hospitalisation events due to hypoglycaemia in the past 3 months.

Descriptive statistics

• The proportion of patients having experienced hypoglycaemia and severe hypoglycaemia in the past 3 months were described overall, by country and by treatment type.
• The proportion of patients with at least one hospitalisation in the past 3 months/ER visit in the past 6 months due to hypoglycaemia were described overall and by country.
• Chi-square tests were used to test heterogeneity by country.

Regression models

Logistic regression models were performed to identify the parameters associated with hospitalisations and ER visits due to hypoglycaemia. Parameters included in regression models were the following:

• Management practices*
• Level of HA1c
• GP (General Practitioner) and specialists visits
• Patient characteristics: age, gender, ethnicity, education level, duration of diabetes, smoking status, types of treatment and type of insulin
• Physician characteristics: age, sex, specialty, medicine practice duration, number of diabetic/insulinised patient per months

*Management practices were based on the number of blood lipid, blood pressure and HA1c tests, diabetes education, blood glucose self-monitoring and screening for complications in the past year (see Poster P090101, Impact of diabetes management on diabetes control and resource consumption in type 2 diabetic patients. Chan et al. ISPOR Vienna 2016).

RESULTS

Descriptive statistics

Study population

• Analyses were based on 8,209 adults with 720M, 53% were females and the mean (SD) age was 57.3 (10.8) years.
• The mean duration (SD) of diabetes was 8.6 (7.0) years.
• Patients were recruited from 18 countries and were grouped in 5 regions: Africa, Eurasia, Middle East, South Asia and Turkey (Figure 1).

Figure 1: Sample size per country

Hypoglycaemia

• 14.1% of patients experienced hypoglycaemia in the past 3 months.
• The proportion of patients with hypoglycaemia ranged from 9% in Uzbekistan to 23% in Algeria and was heterogeneous across countries (p-value<0.001), (Figure 2).
• Among patients having at least one hospitalisation due to diabetes, 7.7% had an hospitalisation due to hypoglycaemia.

Figure 2: Hypoglycaemia by country

• 29% of patients treated with basal + prandial + SU (Sulfonylureas), 30% of patients treated with basal + prandial + OGLD (Oral Glucose Lowering Drugs) except SU and 33% of patients treated with premia + OGLD except SU had experienced hypoglycaemia in the past 3 months.
• Non-insulin treated patients had the lowest proportions of hypoglycaemia (8.8% in SU-based and 5% in any OGLD-based regimens) (Figure 3).

DISCUSSION

• In this largest observational study which documents the quality of diabetes care in developing countries, we observed high frequency of hypoglycaemia with considerable inter-country heterogeneity.
• Due to the cross-sectional design of the 5th wave IMDPS dataset, effects over time could not be assessed as part of these analyses. The causality of associations between variables was difficult to interpret.
• The associations with doctors’ young age and patients’ old age call for more analysis on possible effects of clinical experiences and patients’ profiles on risk of hypoglycaemic episodes.
• While insulin was a major risk factor for hypoglycaemia, there were differences between different formulations and regimens of insulin.
• Education was independently associated with reduced risk of hypoglycaemia.

CONCLUSIONS

The multiple predictors for ER visit and hospitalisation due to hypoglycaemia raise the hypothesis that professional and patient education as well as a supporting practice environment is needed to optimise the use of insulin in developing countries.

REFERENCES & ACKNOWLEDGEMENTS

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