



ELSEVIER

Contents lists available at [ScienceDirect](#)

Primary Care Diabetes

journal homepage: <http://www.elsevier.com/locate/pcd>PCDE
primary care diabetes europe

Original research

Are we missing hypoglycaemia? Elderly patients with insulin-treated diabetes present to primary care frequently with non-specific symptoms associated with hypoglycaemia

Suzy V. Hope^{a,*}, Phil J. Taylor^b, Beverley M. Shields^a,
Andrew T. Hattersley^a, Willie Hamilton^c

^a Exeter NIHR Clinical Research Facility, RILD Building, Royal Devon & Exeter Hospital, Barrack Road, Exeter, Devon EX2 5DW, UK

^b Axminster Medical Practice, St Thomas Court, Church Street, Axminster, EX13 5AG Devon, UK

^c Department of Primary Care, University of Exeter Medical School, St Luke's Campus, University of Exeter, Heavitree Rd, Exeter, Devon EX1 2LU, UK

ARTICLE INFO

Article history:

Received 5 April 2017

Accepted 19 August 2017

Available online xxx

Keywords:

Elderly

Hypoglycaemia

Diagnosis

Symptoms

Insulin

Falls

ABSTRACT

Introduction: We assessed if patients with known hypoglycaemia present on other occasions with non-specific symptoms associated with (but not diagnosed as) hypoglycaemia, potentially representing missed hypoglycaemia.

Methods: 335 primary care records (5/2/12-4/2/13) from patients aged >65 (79 on insulin, 85 on sulphonylureas, 121 on metformin only, 50 without diabetes) were assessed for hypoglycaemia episodes and consultations with non-specific symptoms, "hypo clues".

Results: 27/79(34%) insulin-treated patients had >1 documented hypoglycaemia episode, compared to 4/85(5%) sulphonylurea-treated patients, 2/121(2%) metformin-only treated patients, and none without diabetes, $p < 0.001$.

"Hypo clue" consultations were common: 1.37 consultations/patient/year in insulin-treated patients, 0.98/patient/year in sulphonylurea-treated, 0.97/patient/year in metformin only-treated, and 0.78/patient/year in non-diabetic patients, $p = 0.34$. In insulin-treated patients with documented hypoglycaemia, 20/27(74%) attended on another occasion with a "hypo clue" symptom, compared to 21/52(40%) of those without hypoglycaemia, $p = 0.008$. No significant difference in the other treatment groups.

Nausea, falls and unsteadiness were the most discriminatory symptoms: 7/33(21%) with hypoglycaemia attended on another occasion with nausea compared to 14/302(5%) without hypoglycaemia, $p = 0.002$; 10/33(30%) vs 36/302(12%) with falls, $p = 0.007$; and 5/33(15%) vs 13/302(4%) with unsteadiness, $p = 0.023$.

* Corresponding author.

E-mail addresses: S.V.Hope@exeter.ac.uk, suzy.hope@nhs.net (S.V. Hope), philtaylor@nhs.net (P.J. Taylor), B.Shields@exeter.ac.uk (B.M. Shields), A.T.Hattersley@exeter.ac.uk (A.T. Hattersley), W.Hamilton@exeter.ac.uk (W. Hamilton).

<http://dx.doi.org/10.1016/j.pcd.2017.08.004>

1751-9918/© 2017 The Authors. Published by Elsevier Ltd on behalf of Primary Care Diabetes Europe. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

Conclusions: Non-specific symptoms are common in those >65 years. In insulin-treated patients at high hypoglycaemia risk, nausea, falls and unsteadiness should prompt consideration of hypoglycaemia.

© 2017 The Authors. Published by Elsevier Ltd on behalf of Primary Care Diabetes Europe.

This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Tight glycaemic control in order to prevent long-term complications of diabetes [1,2] has been associated with an increased prevalence of hypoglycaemia in Type 1 [3] and Type 2 diabetes [4]. Increasing prevalence of diabetes coupled with longer life expectancy, and thus longer diabetes duration, means there is an increasing elderly population on potentially hypoglycaemia-causing medications such as insulin and sulphonylureas [5–7].

Hypoglycaemia has numerous direct risks such as falls, accidents, hospitalisation, impact on driving, fear and adverse effects on quality of life, arrhythmias, and long-term cognition [8]. It also brings the risk of becoming less aware of the symptoms – hypoglycaemia unawareness – which leads into a vicious circle [9].

The recognition that elderly people on hypoglycaemia-causing medications may be particularly vulnerable has led to alterations of guidelines, incorporating more relaxed HbA1c targets for frail elderly, or those with multiple comorbidities [10–12].

Hypoglycaemia symptoms in elderly people are less pronounced than in younger patients [13–15]. Hypoglycaemia is under-reported, and under-recognised – by patients, carers and healthcare professionals [16–18]. Symptoms also vary much more between episodes in the same person than is often appreciated [19]. These factors complicate estimates of the prevalence of hypoglycaemia, almost certainly leading to under-estimation.

As blood sugar levels fall, the autonomic symptoms of sweating, palpitations, and anxiety first occur; these stimulate food intake, in order to restore blood glucose levels [20]. However autonomic symptoms become less prominent in older age [13,21], and glucose levels may thus fall into the “neuroglycopenic” range before self-correction. Symptoms of insufficient cerebral glucose are non-specific, including unsteadiness, light-headedness, tiredness and confusion [8,22] – symptoms seen commonly in the general population [23–25], and particularly in elderly patients for many other reasons too [26,27].

The symptoms most associated with hypoglycaemia have been reported [9,20,28,29], including those particularly seen in the elderly [14]. However, their non-specific nature, along with multiple alternative explanations, including possible comorbidities, mean that hypoglycaemia may not be recognised. This study aimed to establish if patients at risk of hypoglycaemia present more to primary care with non-specific symptoms which may represent unrecognised episodes of hypoglycaemia.

2. Method

We performed a cross-sectional survey in one primary care practice (list size: ~11,000, ~3300 >65 years old) based in a small market town and with a large rural patient population. The practice’s Egton Medical Information Systems (EMIS) database was used to identify all patients aged 65 or over who were treated with insulin (n=79), sulphonylureas (but not insulin) (n=85), or metformin only (n=121), and 50 age-matched non-diabetic patients.

One author (SH: a geriatrician) systematically reviewed patients’ consultation notes over a one year period (5/2/12–4/2/13), to identify any episodes of hypoglycaemia (defined below), or any “hypo clue consultations” – consultations with non-specific symptoms known to be associated with hypoglycaemia (see below), where no other obvious explanation or subsequent diagnosis was recorded. The records were reviewed sequentially using the practice’s internal computer number for each patient (essentially a random number). Review of the consultation records was performed independently of patient characteristics which were collected on a separate occasion: age, diabetes details, treatment, and glycated haemoglobin (HbA1c) blood test results.

2.1. Definition of hypoglycaemia

Hypoglycaemia episodes were defined as episodes having been directly confirmed by a doctor or nurse, paramedic or hospital (although the blood glucose was not always recorded).

2.2. Definition of “hypo clue” consultations

A “hypo clue consultation” was defined as one or more of the following symptoms recorded in the primary care records, without an obvious explanation or subsequent diagnosis documented – or documentation that hypoglycaemia had been considered. The symptoms (or synonyms) included were based on the work by Jaap et al. [14]: shivering, shaking, sweating, pounding heart/palpitations, lip tingling, dry mouth, apprehension, anxiety, agitation, confusion, odd behaviour, lethargy/fatigue, tiredness, drowsiness, weakness, speech difficulty, light-headedness, dizziness, unsteadiness, incoordination, feeling unwell, nausea, hunger, headache, double or blurred vision, depression symptoms, difficulty concentrating, and memory complaints [14]. Unexplained waking and falls were also included due to clinical experience.

Download English Version:

<https://daneshyari.com/en/article/8580588>

Download Persian Version:

<https://daneshyari.com/article/8580588>

[Daneshyari.com](https://daneshyari.com)