Is the Presence of Hypoglycemia in Pre-Hospital Seizure Patients a Myth?

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Introduction

- 'conventional' wisdom states hypoglycemia is frequently present during a seizure or is a 'cause' of seizures
- recent literature disputes this[1,2, 3]
- paramedics often attend seizure patients in the pre-hospital setting and their medical directives include testing the blood sugar. Is this necessary?

1.Martin-Gill C, Hostler D, Callaway C, Prunty H, et al. Management of Prehospital Seizure Patients by Paramedics. Prehospital Emergency Care. 2009;13(2):179-84.
2. Beskind D, Rhodes S, Stolz U, Birrer B, et al. When Should You Test for and Treat Hypoglycemia in Prehospital Seizure Patients? Prehospital Emergency Care, 2014;18(3):433-41.
3. Remick K, Redgate C, Ostermayer D, Kaji A, Gausche-Hill M, Prehospital Glucose Testing for Children with Seizures: A Proposed Change in Management. Prehospital Emergency Care, 2016;Sept 16:1-6) [Epub ahead of print]

Objective

- to determine the frequency of hypoglycemia in patients identified as having had a seizure as coded in ambulance call reports

Participants

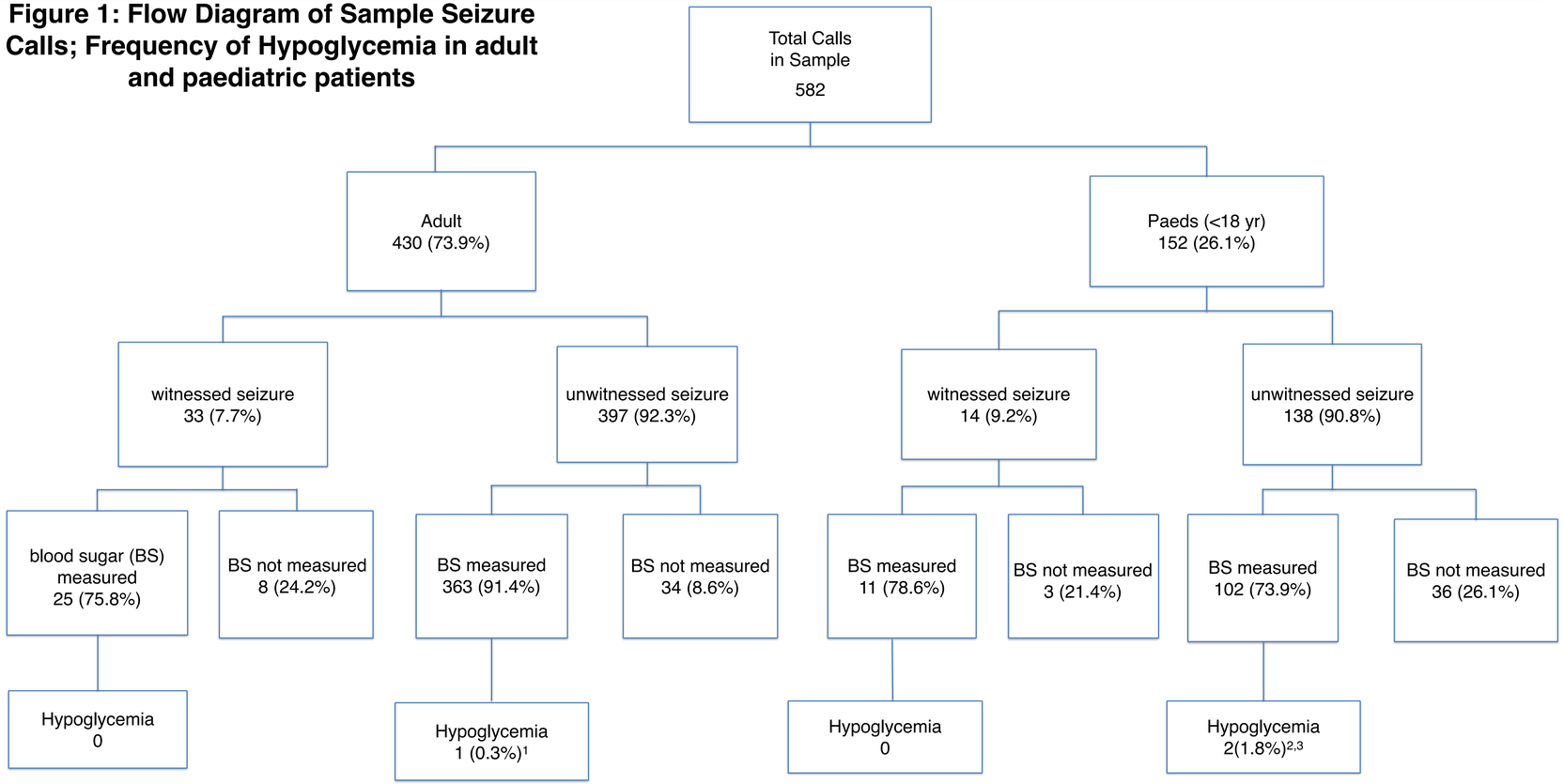
- Advanced Care Paramedics (ACP) and Primary Care Paramedics (PCP)
- 8 municipal paramedic services covering an urban and rural population of 1.4 million, in South Western Ontario, Canada

Methods

- retrospective analysis of ambulance call reports (ACRs) from January 01, 2014 - December 31, 2015
- calls from 8 municipal paramedic services, in South Western Ontario, Canada
- municipal paramedic services used iMedic electronic ACRs
- 5824 ACRs identified in database, by paramedic determined primary or final problem codes of "seizure"
- a 582 (10%) sample - derived by random number table - of seizure calls was used for analysis
- ACRs were manually searched and data extracted onto spreadsheets
- results are described using number of cases and frequencies

Results

Figure 1: Flow Diagram of Sample Seizure Calls; Frequency of Hypoglycemia in adult and paediatric patients



Hypoglycemia = BS < 4.0 mmol/L

Case 1: 70 yr., GCS 12, blood sugar 3.8 mmol/L
Case 2: 12 months, GCS 13, blood sugar 3.9 mmol/L
Case 3: 22 months, GCS 15, blood sugar 3.9 mmol/L

Conclusions

- hypoglycemia was rarely found in patients who had a pre-hospital seizure
- the practice of measuring blood sugars in every patient who has a seizure prior to paramedic arrival should be reconsidered