PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Incidental Findings of Elevated Random Plasma Glucose in the ED as a Prompt for Outpatient Diabetes Screening: A Retrospective Study
AUTHORS	Friedman, Steven; Vallipuram, Janaki; Baswick, Brenda

VERSION 1 - REVIEW

REVIEWER	Dr Evangelos Liberopoulos MD University of Ioannina Medical School, Ioannina, Greece I declare no conflict of interest related to this study
REVIEW RETURNED	31-Jul-2013

GENERAL COMMENTS	This is a study on the usefulness of random plasma glucose (RPG) measured in the Emergency Department (ED) for identification of patients at risk for impaired glucose metabolism (IGM). Comments: 1) Although carefully conducted and well written this study has mainly a local interest in Canada since similar studies have been conducted in other countries. 2) As the authors acknowledge study sample is small (only 88 patients met inclusion criteria) and this a major limitation. 3) Data on reasons for visiting the ED are missing. This information is very relevant. For example, RPG measured during an acute febrile illness may not have the same value as RPG obtained during a visit for headache. 4) An important source of possible bias is that RPG was measured in only one third of patients. Which were the reasons for measuring or not measuring RPG? It could well be that a patient with certain characteristics (e.g., obesity) had more chances to have his or her RPG measured. 5) Another source of possible bias is that patients included in the present study consisted of a selected population, i.e. they were those that could be reached, gave consent and visited the family physician. 5) Abbreviations should be defined when first used (FP). 6) Page 9; last word should be ‘by’ instead of ‘be’.

REVIEWER	Kevin shotliff Consultant endocrinologist Chelsea and westminster hospital London, uk No conflict of interest
REVIEW RETURNED	03-Nov-2013

THE STUDY	The aim appears to be to see how many people have undiagnosed diabetes or impaired glucose tolerance / impaired fasting glycaemia but the results lump them all together as IGM where it would be easier to understand if these groups were broken down more clearly, there is also discussion regarding use of HBA1 c as a diagnostic tool but no clear explanations as to why this was not undertaken in this population when in the ED , although as this was a retrospective study this may be one reason, the recall to undertake that test may have been one option to at least discuss if not use
GENERAL COMMENTS	Interesting article which with minor clarification should be of interest to most physicians as shows potential to any random screening population with good follow up rate

VERSION 1 – AUTHOR RESPONSE

Appropriate changes have been made to the manuscript, and hilited in yellow.

Comments:
1) Although carefully conducted and well written this study has mainly a local interest in Canada since similar studies have been conducted in other countries.

- SMF: While this study was conducted in one Canadian institution, we believe that the general principles may be generalized across broader ED settings (though not the specific quantified findings.)

Issues regarding generalizability are addressed in the limitations, as well as in the article summary at the beginning of the paper.

2) As the authors acknowledge study sample is small (only 88 patients met inclusion criteria) and this a major limitation.

SMF: Issues regarding sample size are addressed in the limitations, as well as in the article summary at the beginning of the paper.

3) Data on reasons for visiting the ED are missing. This information is very relevant. For example, RPG measured during an acute febrile illness may not have the same value as RPG obtained during a visit for headache.

SMF: The study was conducted at Toronto Western Hospital, a quaternary-care teaching hospital in Toronto. The inclusion and exclusion criteria are described in the methodology:
Using electronic chart review, we retrospectively identified patients visiting the ED over a one month period who had a random plasma glucose drawn in the ED. Patients 18 years of age and older with RPG >7.0 mmol/l, with access to telephone services, and who were able to provide verbal consent and were willing to complete follow-up testing (see below) were included in the study. Patients were excluded from the study if they: (1) had known IGM or a prior history of diabetes, (3) were on diabetic medication, (4) were admitted to hospital, (5) were deceased, or (6) were unable to provide informed consent as they were non-English speaking or confused.

Also, the issue matter of patients in a stress induced state is also discussed in the first paragraph of the discussion.

The following paragraph has been added to the limitations section (Yellow Hilites):
While excluding patients who were admitted to the ED likely removed the majority of the more acutely ill patients with febrile illnesses, we felt that it would be worthwhile to include patients with elevated temperature, not withstanding the potential for more 'false positive' random blood glucose results. Stratification of patients by reason of ED visit might prove useful for subgroup analysis in future studies.

4) An important source of possible bias is that RPG was measured in only one third of patients. Which were the reasons for measuring or not measuring RPG? It could well be that a patient with certain characteristics (e.g., obesity) had more chances to have his or her RPG measured.

SMF: Noted. "Routine" blood-work is ordered by the nursing staff prior to physician assessment – using standardized protocols, clinical guidelines and nurse judgment – and may then also be order by the emergency physician. In our institution, the basic panel of bloodwork will include glucose, electrolytes, renal function studies and complete blood count. This is fairly typical in Canadian ERs.

The following statement has been added to the limitations (Yellow Hilites):
Regional variations in practices and guidelines for ordering blood tests in the ED, reasons for patient presentation to the ED, and premorbid health status (i.e. prevalence of obesity diabetic risk factors) will impact generalizability of these results.

5) Another source of possible bias is that patients included in the present study consisted of a selected population, i.e. they were those that could be reached, gave consent and visited the family physician.

SMF: The issue of physician follow-up is discussed in the final two paragraphs of the discussion.

Also, the following sentence has been added to the limitations (yellow hilites):
It is possible that patients who did not follow-up with their family physician are a selected subgroup with different risk factors and disease prevalence from those who did follow-up.

5) Abbreviations should be defined when first used (FP).
SMF: Corrected.

6) Page 9; last word should be 'by' instead of 'be'.
SMF: Corrected

7, 8) The aim appears to be to see how many people have undiagnosed diabetes or impaired glucose tolerance / impaired fasting glycaemia but the results lump them all together as IGM where it would be easier to understand if these groups were broken down more clearly,

there is also discussion regarding use of HBA1 c as a diagnostic tool but no clear explanations as to why this was not undertaken in this population when in the ED , although as this was a retrospective study this may be one reason, the recall to undertake that test may have been one option to at least discuss if not use

SMF: Noted. Our approach was chosen based on consideration of a) sample size b) prior literature

addressing opportunistic screening in the ED c) limited ability to get detailed follow-up information from the family doctor. Logistics similarly precluded having the patient return to the ED for a follow-up HbA1C. These issues are addressed in the limitations section.