Prediabetes / Diabetes Mellitus / Hypoglycemia

OA-D-01

ASSOCIATION OF SERUM MAGNESIUM LEVELS WITH FASTING PLASMA GLUCOSE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS ON METFORMIN OR PIOGLITAZONE

https://doi.org/10.15605/jafes.034.02.S19

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INTRODUCTION
The aim of this study is to analyze the association between serum magnesium level and fasting plasma glucose in patients with type 2 diabetes mellitus (DM) who had taken metformin or pioglitazone.

METHODOLOGY
Serum magnesium level and fasting plasma glucose were examined from a total of 41 patients whose type 2 diabetes was controlled with metformin ≥750 mg/day for at least 3 weeks or pioglitazone ≥15 mg/day for at least 4 weeks with a body mass index (BMI) of <30 kg/m^2. Fasting plasma glucose was analyzed using Roche/Hitachi Cobas C System. Serum magnesium level was analyzed using Roche/Hitachi Cobas C311/501 System.

RESULTS
The mean value of serum magnesium levels was 2.04±0.19 mg/dL. The median of fasting plasma glucose was 131±40, 85 mg/dL. The lower level of the serum magnesium had a significant correlation with fasting plasma glucose.

CONCLUSION
There is a significant negative correlation between the serum magnesium levels and fasting plasma glucose in type 2 DM on metformin or pioglitazone.

KEY WORDS
serum magnesium level, fasting plasma, glucose, type 2 diabetes mellitus

OA-D-02

CLINICAL PROFILE OF ADULT PATIENTS WITH HYPERGLYCEMIC CRISIS IN A PHILIPPINE TERTIARY MEDICAL CENTER, A TEN-YEAR RETROSPECTIVE STUDY

https://doi.org/10.15605/jafes.034.02.S20

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INTRODUCTION
The last study about diabetic ketoacidosis and hyperosmolar hyperglycemic state in our country was done 20 years ago. New diagnostic tools and therapeutic regimen may affect diabetes control, the researchers intend to know the changes in the clinical profile of patients with hyperglycemic crisis in the country.

METHODOLOGY
Descriptive study that utilized chart review. Included patients >18 years old, admitted in DLSUMC between 2007 and 2017 with a diagnosis of DKA or HHS based on ICOA-D-10 codes. Pregnancy excluded. Clinical characteristics, biochemical profile and precipitating factors were tallied. Descriptive statistics was used and Quantitative variables were reported as mean with standard deviation, while qualitative variables were reported as frequency and percentage.

RESULTS
71 patients with DKA and HHS were included. Majority had DKA (53). 46 (64.79%) patients were known to have diabetes for 7-13 years. The mean Hba1c level is 9-17 mg/dL that is higher than the developed countries. CBG range upon admission among DKA patients were 327 to 593 mg/dL and 427 to 693 mg/dL for HHS patients. Majority were discharged-improved. The most common presenting symptom was abdominal pain 19 (35.84%). The most common precipitating factor was infection, same in Thailand and US.

CONCLUSION
Hyperglycemic crises is common in Filipinos with T2DM which could suggest breaks in health services delivery and the unaffordability of insulin and new antidiabetic medications for patients with financial constraints as compared with developed countries like US and Japan. HbA1c levels did not significantly differ in other countries and this is consistent with the progressive nature of diabetes mellitus.

KEY WORDS
diabetes, epidemiology, diabetic ketoacidosis, hyperglycemic hyperosmolar state

OA-D-03

PREVALENCE OF VITAMIN B12 DEFICIENCY AND ITS ASSOCIATED FACTORS AMONG PATIENTS WITH TYPE 2 DIABETES ON METFORMIN IN MALAYSIA

https://doi.org/10.15605/jafes.034.02.S21

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INTRODUCTION
It has been proven that vitamin B12 deficiency is more common among metformin treated subjects with a variable prevalence worldwide, and this can lead to an array clinical sequelae. We evaluated the prevalence of vitamin B12 deficiency among metformin treated patients with type 2 diabetes in Malaysia.

METHODOLOGY
This is a cross-sectional study involving 205 patients from a Malaysian district aged 18 years old and above who have been on metformin for at least 6 consecutive preceding months. Medical history was obtained via a standardized questionnaire and all subjects had blood drawn for serum vitamin B12 levels.

RESULTS
Vitamin B12 deficiency was defined as serum B12 level ≤300 pg/ml (221 pmol/L). The prevalence of vitamin B12 deficiency among metformin treated patients with type 2 diabetes was 28.3% (n=58) and the mean vitamin B12 level was 457±231 pg/ml. A longer duration of diabetes and metformin use for more than 5 years were associated with an increased risk for vitamin B12 deficiency (p<0.05). The non-Malay population were at a higher risk for metformin associated vitamin B12 deficiency (p<0.001).

CONCLUSION
Our study suggests that patients with type 2 diabetes on metformin should be screened for vitamin B12 deficiency. This is especially so among patients with a longer duration of diabetes and those on metformin for more than five years. Also, it should be kept in mind that the non-Malay population with diabetes in Malaysia seem to be at increased risk for vitamin B12 deficiency compared to their Malay counterparts.

KEY WORDS
metformin, vitamin B12, deficiency

OA-D-04

DIABETIC KETOACIDOSIS: PATTERN OF PRECIPITATING FACTORS AMONG CHILDREN IN A TERTIARY CARE HOSPITAL IN BANGLADESH

https://doi.org/10.15605/jafes.034.02.S22

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INTRODUCTION
Diabetic ketoacidosis is a major complication of childhood type 1 and type 2 diabetes mellitus and is associated with increased risk of morbidity and mortality. Infections, non-compliance and co-morbid states are most important precipitating causes. Proper identification of the precipitating factor is very important in management of DKA. There are very few published large studies from Bangladesh. For this reason, this study evaluated fifty children with DKA and identified their precipitating factors.

METHODOLOGY
This observational study was done among admitted children with DKA in the Department of Paediatrics of BIRDEM General Hospital during study period between September 2016 to February 2017. All children (<18 years) with a diagnosis of DKA, whether previously known to have diabetes or newly diagnosed case were included in the study while patients having other causes of acidosis like chronic kidney failure, diarrhea were excluded from the study.

RESULTS
Fifty children were admitted with DKA. Seventy percent were new cases and the remaining (30%) were known DM patient. Majority were female (62%). Mean age was 9.31 years with 4.40 standard deviation among affected children. Infection was the most common (62%) precipitating factor followed by insulin omission (10%).

CONCLUSION
In this study, infection was the most common precipitating factor for DKA. Knowledge of precipitating factors and clinical features of DKA will help in early diagnosis of DKA among children and thereby reduce morbidity among them.

KEY WORDS
children, diabetic ketoacidosis, precipitating factors