

EnM

ENDOCRINOLOGY AND METABOLISM

Abstract book



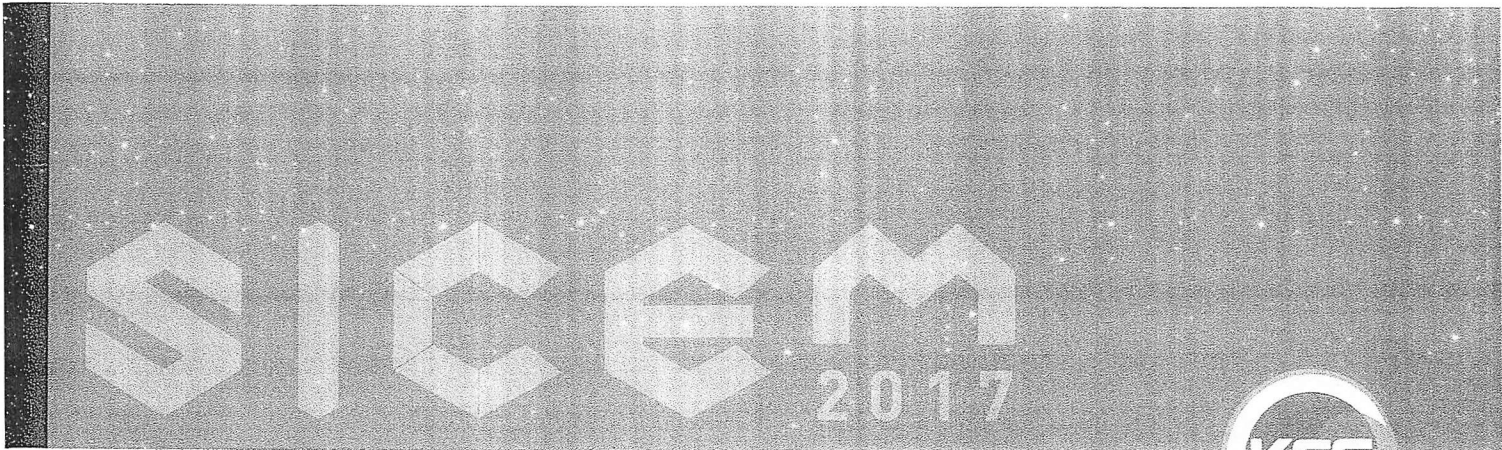
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Diabetes, Insulin resistance, Hypoglycemia

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Diabetes

P-013

Diabetes, Insulin resistance, Hypoglycemia

THE PREVALENCE OF NONALCOHOLIC FATTY LIVER DISEASE DEFINED BY FATTY LIVER INDEX IN KOREAN ADULTS; THE 2010-2011 KOREAN NATIONAL HEALTH AND NUTRITION EXAMINATION

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Yang Ho Kang¹, Seok Man Son¹

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Objectives: Nonalcoholic fatty liver disease (NAFLD) is the most common chronic liver condition worldwide and is the hepatic manifestation of metabolic syndrome. We aimed to estimate the prevalence of NAFLD defined by non-invasive fatty liver index (FLI) and to investigate whether FLI correlates with insulin resistance and metabolic syndrome in Korean population.

Methods: Subjects from the Korean National Health and Nutrition Examination Surveys 2010-2011 database were eligible for the study if they had gamma GTP measurements without secondary causes of fatty liver (excessive alcohol consumption, hepatitis B and C virus positivity).

Results: A total of 10,303 subjects (mean age, 46.0 y) were analyzed. Using the FLI (≥ 60), NAFLD was identified in 1,157 (12%) of 10,303, showed increased prevalence with age (15.34 ± 0.76 in twenties, 30.53 ± 0.56 in sixties, $P < 0.001$). The proportion of patients with diabetes mellitus (DM) or metabolic syndrome (MetS) was significantly higher in the groups of FLI ≥ 60 (12.2% of DM, 74.7% of MetS) than FLI < 60 (4.2% of DM, 11.8% of MetS). A significantly positive correlation was found between FLI and HOMA-IR, fasting insulin and fasting glucose and a significantly negative correlation was found between FLI and HDL-cholesterol. Multiple logistic regression analysis, adjusted by age, sex and cholesterol showed that patients with DM have significantly higher prevalence of NAFLD (FLI ≥ 60 , odds ratio, 1.98; 95% confidence interval [CI], 1.47 - 2.68). In line, the patients with MetS have dramatically higher prevalence of NAFLD (FLI ≥ 60 , odds ratio, 12.33; 95% confidence interval [CI], 9.65 - 15.75).

Conclusion: NAFLD prevalence using FLI was significantly higher in DM and MetS. FLI might be useful screening tool to select subjects for liver ultrasonography and intensified lifestyle modification in patients with diabetes mellitus or metabolic syndrome.

Keywords: Diabetes mellitus, Insulin resistance, Metabolic syndrome, Non-alcoholic fatty liver disease

P-015

Diabetes, Insulin resistance, Hypoglycemia

EFFECT OF QUERCETIN AND GLIBENCLAMIDE COMBINATION ON CARDIAC MUSCLE NUCLEAR FACTOR KAPPA B (NF- κ B) EXPRESSION IN TYPE 2 DIABETIC RATS

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Objectives: The aim of this study is to measure the effects of quercetin and glibenclamide combination on cardiac muscle cells NF- κ B expression in type 2 diabetic rats compared with no combination.

Methods: The subject of this research was 25 rats, divided into 5 groups: one healthy group and 4 diabetic groups (5 rats per group). The diabetic groups consisted of groups which received placebo, quercetin 20 mg/kgbw/day, glibenclamide 5 mg/kgbw/day and combination of quercetin with glibenclamide. The tested materials were given orally for 4 weeks. After treatment, the cardiac tissue was taken for immunohistochemistry and the percentage of NF- κ B expression was measured.

Results: Quercetin 20 mg/kgbw/day which reduces the percentage of NF- κ B in cardiac muscle cells is better than glibenclamide 5 mg/kgbw/day ($P < 0.05$). The combination of quercetin 20 mg/kgbw/day and glibenclamide 5 mg/kgbw/day which reduces the percentage of NF- κ B in cardiac muscle cells is better than no combination ($P < 0.05$).

Conclusion: The combination of quercetin 20 mg/kgbw/day and glibenclamide 5 mg/kgbw/day which reduces the percentage of NF- κ B in the cardiac muscle cells is better than no combination.

Keywords: Quercetin, Glibenclamide, Type 2 diabetes mellitus, Immunohistochemistry, Nuclear factor kappa B (NF- κ B)

P-014

Diabetes, Insulin resistance, Hypoglycemia

THE EFFICACY OF HONEY WOUND DRESSING FOR TREATING DIABETIC FOOT ULCER: AN EVIDENCE-BASED CASE REPORT

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Objectives: To identify the efficacy of honey wound dressing in treating diabetic foot ulcer. **Methods:** Literature searching was conducted in online databases namely Pubmed, Clinicalkey, ScienceDirect, Cochrane, EBSCO and Scopus using inclusion and exclusion criteria. 1 selected RCT and 2 selected systematic reviews were appraised for its validity, importance, and applicability, based on guidelines from Oxford Center of Evidence-Based Medicine.

Results: Based on one appraised article, it can be concluded that honey wound dressing is effective in treating diabetic foot ulcer.

Conclusion: Honey wound dressing can be considered as an alternative dressing for treating diabetic foot ulcer, but further research is needed to evaluate its efficacy.

Keywords: Diabetic foot ulcer, Honey, Wound dressing

P-016

Diabetes, Insulin resistance, Hypoglycemia

PREVALENCE AND RISK FACTORS OF PERIPHERAL ARTERIAL DISEASE AMONG FILIPINOS WITH PREDIABETES AND DIABETES MELLITUS SEEN AT THE OUT-PATIENT DEPARTMENT ST. LUKE'S MEDICAL CENTER QUEZON CITY

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Objectives: To determine the prevalence and risk factors of PAD among Filipino pre-DM and DM. Few local studies on PAD done among DM did not include risk factor analysis and none in pre-DM group. To identify who will benefit from further work-up, considering in the Philippines, healthcare expenses are out-of-pocket.

Methods: A cross-sectional & analytic study. Inclusion criteria are the following: ≥ 18 years old, Filipino, seen at the outpatient department with laboratory results within the past 6 months, diagnosed DM or pre-DM by ADA criteria, no previous MI or stroke, PAD determined through ABI using a hand-held doppler device. Data gathered were as follows: age, sex, smoking status, hypertension, dyslipidemia, BMI, diabetes duration, CKD, and HbA1c level. This study used measures of central tendency (mean), range and percentages for appropriate data. Comparison of means was done using the independent *t*-test. The factors deemed significantly different between groups was entered into multivariate regression analysis to determine the odds ratio. This study was done at 95% confidence interval. *P* value of < 0.05 was considered significant. The IBM SPSS Statistics Version 20 was used in the analysis of data.

Results: Total of 166 subjects (100DM: 66pre-DM); F:M 77%:27%. Average age of the subjects is 57.19 (SD ± 10.71) years with a mean BMI of 26.69 kg/m^2 (SD ± 4.63) and mean systolic BP of 134.88 mmHg (± 17.86), most are nonsmoker (78%). Prevalence of PAD among DM subjects is 19% mean age 61.42 ± 8.42 yo. No case of PAD among preDM group. (vs data by Faghihimani et al., prevalence of 2.2% (1/45), the only study currently available on PAD in preDM). Comparing the group of PAD and no PAD, the PAD group had higher SBP by 10.54 mmHg ($P = 0.015$), total cholesterol by 23.55 mg/dL ($P = 0.032$), triglyceride by 47.92 mg/dL ($P = 0.003$), and HbA1c by 1.23% ($P = 0.004$); longer duration of diabetes (10.89 vs 5.9 yrs) ($P < 0.000$); and lower eGFR by 25.93 mL/min ($P = 0.000$). On logistic regression analysis, eGFR showed OR 0.961 with 4% chance of developing PAD as it decreases ($P = 0.003$). No significant difference with regards to BMI and smoking status.

Conclusion: With PAD prevalence of 19% among diabetics and no case detected among preDM, ABI determination among preDM may not be cost efficient. Significant difference between the PAD and non-PAD group was found with regards to the following: duration of diabetes, systolic BP, HbA1c, eGFR, total cholesterol and triglyceride; with higher levels in the PAD-group. Although ABI is part of the recommendations both by the American College of Cardiology and American Diabetes Association, only a small number of physicians use it in actual practice. Considering the low doctor to patient ratio in our setting, identification of significant risk factors for PAD can help promote ABI determination in the clinic setting.

Keywords: Diabetes, Peripheral arterial disease

BACKGROUND

Type 2 diabetes mellitus is a metabolic disease that often cause cardiomyopathy and heart failure. These complications are caused by free radicals increasing that induced expression of pro inflammatory genes nuclear factor kappa B (NF-κB) and causes cells damage. Quercetin is an antioxidant that can affect the expression of NF-κB and prevent cells damage. The combination of quercetin with oral hypoglycaemic drugs is expected to be a better therapy for type 2 diabetes.

The aim of this study is to measure the effects of quercetin and glibenclamide combination on cardiac muscle cells NF-κB expression in type 2 diabetic rats compared with no combination.

METHODS

- The subject of this research was 25 rats, divided into 5 groups: one healthy group and 4 diabetic groups (5 rats per group).
- The diabetic groups consisted of groups which received placebo, quercetin 20 mg/kgbw/day, glibenclamide 5 mg/kgbw/day and combination of quercetin with glibenclamide.
- The tested materials were given orally for 4 weeks.
- After treatment, the cardiac tissue was taken for immunohistochemistry and the percentage of NF-κB expression was measured.

RESULTS

Quercetin 20 mg/kgbw/day which reduces the percentage of NF-κB in cardiac muscle cells is better than glibenclamide 5 mg/kgbw/day ($p < 0.05$). The combination of quercetin 20 mg/kgbw/day and glibenclamide 5 mg/kgbw/day which reduces the percentage of NF-κB in cardiac muscle cells is better than no combination ($p < 0.05$).

Table 1. The group division of treatment

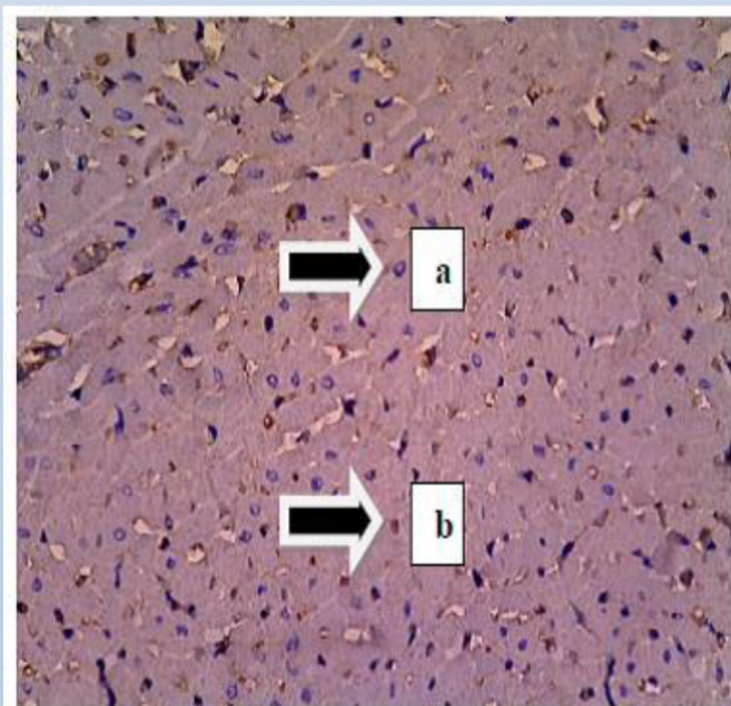
Group Name	Description
K1	Group of normal rats given placebo/day
K2	Group of diabetic rats given placebo/day
K3	Group of diabetic rat given glibenclamide 5 mg/kg/day
K4	Group of diabetic rat given quercetin 20 mg/kg/day
K5	Group of diabetic rat given quercetin 20 mg/kg/day and glibenclamid 5 mg/kg/day

Table 2. The mean percentage data of NFκB of heart muscle (%)

Treatment Group	Percentage of Heart Muscle NFκB (%)	P*
K1	3,69±0,29	0,000
K2	18,07±1,02	
K3	13,71±0,63	
K4	12,55±0,43	
K5	10,24±0,65	

description: *One Way ANOVA test is significant when $p < 0.05$. K1: group of healthy rats given placebo/day, K2: group of diabetic rats given placebo/day, K3: group of diabetic rats given glibenclamide 5 mg/kg/day, K4: group of diabetic rats given quercetin 20 mg/kg/day, and K5: Group of diabetic rats given quercetin 20 mg/kg/day and glibenclamide 5 mg/kg/day.

RESULTS CONTINUED



a=nucleus which do not express NFκB is blue.
b= nucleus which express NFκB is brown.

Figure 1. Heart muscle cells which express and do not express NFκB on the nucleus.

CONCLUSIONS

The combination of quercetin 20 mg/kgbw/day and glibenclamide 5 mg/kgbw/day which reduces the percentage of NF-κB in the cardiac muscle cells is better than no combination.

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