Risiko kebiasaan kasus toleransi glukosa terganggu terhadap terjadinya diabetes melitus tipe 2

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Abstrak

ABSTRAK
Penyakit diabetes melitus tipe 2 (DM tipe 2) merupakan penyakit metabolik dengan karakteristik hiperglikemia yang terjadi karena kelainan sekresi insulin, kerja insulin atau kedua-duanya. Faktor yang berkaitan dengan sekresi dan kerja insulin antara lain kebiasaan minum kopi. ToIeransi Glukosa Terganggu (TGT) merupakan suatu prakondisi kejadian DM. Penelitian bertujuan mengetahui pengaruh kebiasaan minum kopi pada kasus TGT terhadap terjadinya DM tipe 2 dan gambaran laju insidensi DM tipe 2 pada kasus TGT serta kesintasannya.

Penelitian merupakan Study Kohort Praspektif selama 2 tahun 4 bulan terhadap 289 kasus TGT. Konsumsi kopi dinilai dari jumlah kandungan kafein sesuai frekuensi minuet, jumlah bubuk, dan merk minuman kopi. Kandungan kafein diperiksa dengan alat Spektrofotometer Serapan Atom (SSA) menggunakan metode Kromatografi Cair Kinerja Tinggi (KCKT). Diagnosis DM tipe 2 ditetapkan berdasarkan hasil pemeriksaan klinis dan hasil pemeriksaan kadar glukosa darah puasa ?120 mg/dL danlatau hash pemeriksaan glukosa darah 2 jam sesudah pembebanan glukosa > 200mg/dL. Analisis statistik menggunakan perangkat lunak Stata versi 8.0. Penilaian laju insidensi dengan analisis survival, peranan faktor risiko DM tipe 2 dan TGT dengan analisis multivariat Cox Proportional Hazard Regression dan Multinomial Logistic Regression.

Temuan panting dari penelitian ini : (1) Laju insidensi DM tipe 2 adalah 9,3 per I00 kasus TGT per tahun; (2) konsumsi kopi dengan kafein 240 - 359,9 mg per hari hari mempunyai rasio hazard (FIR) 2,33 dan kafein ? 360 mg per hari mempunyai FIR 3,24; (3) faktor lain yang berisiko adalah konsumsi lemak ? 40 gram per hari dengan FIR 2,07, obesitas (IMT ? 25) HR 2,25, obesitas abdominal (RPP L : > 0,95; W: > 0,85) HR 2,28, lama minum kopi (? 10 tahun) HR 1,97, hipertrigliserida (? 200 mg/dL) HR 2,41 dan FFA tinggi (? 0,93 mM) HR. 1,9; (4) mencampur minuman kopi dengan susu atau krim, aktivitas fisik (indeks 120 menitlhari), konsumsi serat ? 25 gram per hari dan konsumsi teh ditemukan mencegah DM tipe 2 masing-masing dengan HR 0,28 0,56, 0,42, dan 0,50; (5) kafein 240 - 359,9 mg mempunyai rasio risiko relatif (rasio RR) tetap mengalami TGT 2,95, kafein ? 360 mg mempunyai rasio RR 3,28;(6) faktor lain yang berisiko TGT adalah konsumsi lemak dengan rasio RR 2,51, obesitas abdominal 2,47 dan hipertrigliserida 2,97; (7) aktivitas fisik dan konsumsi serat ditemukan mencegah TGT masing-masing dengan rasio RR 0,29 dan 0,40; (8) Dari temuan penelitian dihasilkan tiga model sistim skor prediksi DM tipe 2, tiga model untuk memprediksi kejadian tetap TGT dan tiga model untuk memprediksi kejadian normal dengan 4 batasan risiko, dengan probabilitas area ROC model prediksi antara 83,59% -94,73%.

Konsumsi kopi pada kasus TGT mempunyai respon dosis dan respon waktu terhadap kejadian DM tipe 2 dan tetap TGT. Sebaliknya terhadap kejadian normal, respon tersebut berbanding terbalik. Jumlah kafein

yang terkandung pada minuman kopi meningkatkan FFA mengakibatkan resistensi insulin dan kelelahan sel j3 dalam mengsekresi insulin yang berakhir dengan diabetes. Campuran susu atau krim pada minuman kopi menambah asupan kalsium pada tubuh dan mereduksi kandungan kafein, sehingga mencegah DM tipe 2 pada peminum kopi. Model predisksi dengan sistim skor cukup baik dan praktis untuk memprediksi risiko DM tipe 2, tetap TGT, dan normal. Jika risiko diketahui lebih dini, tindakan pencegahan dapat segera dilakukan dan memberikan hasil penanggulangan lebih baik.

<hr><i>ABSTRACT

Type 2 Diabetes Mellitus (Type 2 DM) is a metabolic disease characterized by hyperglycemia, due to the abnormal insulin secretion, insulin function, or both. One of the factors related to insulin function and secretion is drinking coffee. Impaired Glucose Tolerance (IGT) is a precondition for the occurrence of Diabetes Mellitus. This research is aimed to study the risk of developing Type 2 DM among impaired glucose tolerant cases that regularly drinks coffee, and to determine the incidence rate of Type 2 DM on IGT cases as well as its survival rate.

This is a cohort prospective study with the duration of 2 years and 4 months among 289 IGT cases. Coffee consumption was assessed by caffeine content according to drinking coffee frequency, weight of coffee powder, and coffee brand's name. The caffeine content was measured by spectrophotometer, used High Performance Liquid Chromatography (HPLC) method. Type 2 DM diagnosis was determined according to ADA 1997 criteria (fasting blood glucose of > 126 mg/dL and/or 2 hours after glucose load of > 200 mg.dL Statistical analysis software used in this study was Stala version 8.0. Assessment of the incidence rate was calculated by survival analysis, while the risk factors of developing Type 2 DM, remained IGT, and reversing to Normal Glucose Tolerance (NGT) were analyzed by multivariate Cox Proportional Hazard Regression and Multinominal Logistic Regression.

Result

Important findings in this research are: (I) The incidence rate of Type 2 DM was 9.3 per 100 cases of IGT person-year; (2) Coffee consumption with caffeine content of 240 - 359,9 mg daily had hazard ratio (HR) of 2.31 and HR for coffee contents > 360 mg caffeine daily was 2.92; (3) Other risk factors for the development Type 2 DM include fat consumption of > 40 g daily, with HR value of 1.99, HR obesity (BMI > 25) was 2.24, and HR for abdominal obesity (waist hip ratio, men: > 0.95; women: > 0.85) was 2.44, while HR for duration of drinking coffee (? 10 years) was 1.97, for hyper triglyceride (? 200 mg/dL) was 2.74, and for high FFA (> 0.93 mM) was 1.88; (4) Drinking coffee with cream or milk, physical activity (index of 120 minutes/day), and food fiber consumption > 25 gram/day, prevent the development of Type 2 DM with HR value of 0,28, 0.56, and 0.38 respectively; (5) Relative risk ratio (RR) to remain 1GT was 2.95 in drinking coffee with caffeine content of 240 - 359.9 mg, and 3.28 in drinking coffee with caffeine content > 360 mg; (6) Other risk factor of remaining IGT were fat consumption, abdominal obesity, and hyper triglyceride, with RR values of 2.51, 2.47, 2.97 respectively; (7) Physical activity and food fiber consumption prevent reversal to IGT with RR value of 0.29 and 0.40; (8) This study resulted in three prediction score system models for the development of type 2 DM, three prediction score system models for remaining to IGT, and three prediction score system models for reversing to NGT, with the probability of prediction model ROC area between 83.5% to 94.73%.

The incidence rate of Type 2 DM increases every year. Caffeine content in the coffee drinks has linear correlation with increased FFA value, insulin resistance, fasting blood glucose, and two hours after glucose load, as well as the occurrence of DM. Drinking coffee among the IGT cases has dosage and time response relationship to the occurrence of type 2 DM and remaining IGT. On the other hand, the relationship is opposite for the reverse to normal glucose tolerance (NGT). Drinking coffee with cream or milk can prevent the occurrence of type 2 DM. Prediction model with scoring system is good and practical to predict risk of type 2 DM and IGT. If the risk is found earlier, the prevention can be immediately performs and will give better result.</i>