

## Gambaran resistensi insulin pada saudara kandung subyek dengan diabetes melitus tipe 2: Studi pendahuluan = An overview of insulin resistance among siblings of subjects with type 2 diabetes mellitus: Preliminary study

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### Abstrak

Latar Belakang. Terdapat dua hipotesis mengenai terjadinya diabetes melitus tipe 2 yaitu kegagalan sel beta pankreas dan resistensi insulin. Mengingat pengaruh faktor genetik pada kejadian DM tipe 2 maka diperkirakan resistensi insulin juga dipengaruhi faktor genetik. Sejauh ini data prevalensi resistensi insulin dan gambaran metabolik pada saudara kandung subyek DM tipe 2 di Indonesia belum ada.

Tujuan. Mendapatkan angka prevalensi resistensi insulin pada saudara kandung subyek dengan DM tipe 2 dan mendapatkan data profil metabolik (profil lipid, IMT, lingkaran perut, konsentrasi asam urat darah), tekanan darah dan distribusinya pada seluruh saudara kandung subyek dengan DM tipe 2

Metodologi. Studi pendahuluan dan potong lintang dilakukan pada 30 saudara kandung subyek DM tipe 2 yang datang berobat di Poliklinik Metabolik dan Endokrinologi RSUPN Dr Cipto Mangunkusumo, untuk dilakukan wawancara, pemeriksaan fisik, konsentrasi insulin darah puasa, glukosa puasa, trigliserida, kolesterol HDL dan asam urat. Resistensi insulin ditentukan dari persentil 75 dari HOMA-IR.

Hasil. Nilai cut-off HOMA-IR pada penelitian ini sebesar 2,04. Frekuensi resistensi insulin pada saudara kandung subyek DM sebesar 26,67% dengan proporsi di tiap keluarga bervariasi dari 0-75%. Semua subyek dengan resistensi insulin memiliki obesitas sentral dan sebanyak 75% memiliki IMT > 25. Komponen metabolik yang paling banyak ditemukan adalah obesitas sentral (56,7%), menyusul hipertensi (46,7%), hipokolesterol HDL dan hipertrigliseridemia masing-masing 26,6%, dan hiperglikemia (20%).

Simpulan. Frekuensi resistensi insulin pada saudara kandung subyek DM tipe 2 sebesar 26,67% dengan proporsi yang bervariasi di setiap keluarga antara 0-75%. Komponen metabolik paling banyak ditemukan adalah obesitas sentral.

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Backgrounds. There are two hypothesis in the pathogenesis of type 2 DM, beta cell failure and insulin resistance. As genetic background has significant role in type 2 DM cases, insulin resistance is also suspected to be influenced by genetic factor. Thus far, there are no insulin resistance prevalence data and metabolic abnormalities among siblings of subjects with type 2 DM available in Indonesia.

Objectives. To obtain prevalence figure of insulin resistance among siblings of subjects with type 2 DM and to obtain their metabolic abnormality profiles as measured by their BMI, waist circumference (WC), blood pressure, glucose intolerance, concentration of triglyceride, HDL cholesterol and uric acid.

Methods. Cross-sectional study is conducted to 30 siblings of subjects with type 2 DM who are still alive and agree to participate in this study. The subjects are interviewed, physically examined and go through laboratory examination (fasting plasma insulin, plasma glucose, serum triglyceride, HDL cholesterol and uric acid concentration). Insulin resistance is derived from 75 percentile of HOMA-IR.

Results. The HOMA-IR cut-off value found in this study is 2,04. The frequency of insulin resistance is 26,67% among siblings of subjects with type 2 DM within variation range of 0-75%. All of subjects with insulin resistance have central obesity. About 75% subjects with insulin resistance have BMI  $\geq$  25. The metabolic components which are frequently found in this study can be ranked as follows; central obesity (56,7%), hypertension (46,7%), hypocholesterol HDL (26,6%), hypertriglyceridemia (26,6%) and hyperglycemia (20%).

Conclusion. The frequency of insulin resistance is 26,67% among siblings of subjects with type 2 DM within variation range of 0-75%. Among the metabolic components found in this study, central obesity is the most frequent.