Efektifitas metformin dalam memperbaiki nilai fmd sebagai indikator perbaikan fungsi endothel pembuluh darah pada subyek hipertensi dengan pre diabetes = Metformin's pleiotrophic efect of improving endothelial function in hypertensive and prediabetic subjects a 3 months follow up study

Lia Valentina Astari, author

Abstrak

[ABSTRAK
Latar belakang. Patogenesis dari pre-diabetes terhadap vascular sudah terjadi sejak awal sebelum ada manifestasi klinis sehingga sudah seharusnya ditatalaksana sejak awal untuk mencegah komplikasi lanjut. Metformin sebagai terapi antihiperglikemik oral memiliki efek pleiotropik yang dapat memperbaiki disfungsi endotel pada keadaan resistensi insulin.
Metode. Penelitian ini merupakan suatu studi longitudinal observasi-intervensi non randomisasi. Observasi dilakukan pada 62 pasien hipertensi dan IGT di Pusat Jantung Nasional Harapan Kita dari bulan Agustus 2014 hingga bulan Januari 2015. Pasien dibagi menjadi tiga kelompok yaitu plasebo (n=18 orang), kelompok metformin 1x500 mg (n=21 orang) dan kelompok metformin 2x500 mg (n=23 orang). Pemeriksaan FMD diambil dua kali (0 dan 3 bulan). Dilakukan analisis statistik untuk menilai efek pemberian Metformin yang dinilai dengan delta FMD dan melihat perbandingan efektifitas dosis 1x500 mg dibandingkan dengan dosis 2x500 mg.
Hasil. Tidak terdapat perbedaan bermakna pada data dasar ketiga kelompok dalam hal umur, jenis kelamin dan terapi hipertensi yang diberikan. Nilai delta FMD menunjukkan peningkatan yang signifikan pada kelompok Metformin 2x500 mg (p <0,001). Analisa regresi linear (adjusted analysis; sesuai usia, jenis kelamin, riwayat merokok dan BMI) menunjukkan koefisiensi 0,89 dengan nilai p 0,394 pada kelompok metformin 1x500 mg dan koefisien 7,88 dengan nilai p <0,001 pada kelompok metformin 2x500 mg.
Kesimpulan. Pemberian Metformin 2x500 mg pada subjek pre-diabetes dengan hipertensi dapat memperbaiki fungsi endothel pembuluh darah yang ditandai dengan perbaikan nilai FMD setelah 3 bulan.
<hr>
ABSTRACT
Background : The vascular effect of insulin resistance had been known to cause serious damage on endothelial function, especially nitric oxide (NO) system, that may cause an earlier onset of cardiovascular disease.
Objective : To explore the pleiotropic effect of Metformin on improving endothelial function.
Method and Results : A quasi experimental study of 62 hypertensive and pre-diabetic (IGT) patients showed a significant improvement of Flow Mediated Dilatation (FMD) within 3 months in those who received added theraphy of Metformin 500 mg twice daily (n=23) on their routine anti-hypertensive drugs (p<0,001). It also showed a moderate correlation between improvement of FMD that reflects the endothelial function with good achivement of targeted blood pressure (R 0,421). Linear regression analysis (adjusted analysis to confounder factors such as age, sex, BMI, history of smoking, aspilet added therapy, anti-hypertensive drugs) showed Metformin as the only factor that influenced the improvement FMD (OR 7,88; p<0,001).

Conclusion : This study showed that Metformin 2x500 mg as an add-on therapy in hypertensive pre-diabetic subject plays a positive role in improving the endothelial function as seen on the FMD measurement,
Background : The vascular effect of insulin resistance had been known to cause serious damage on endothelial function, especially nitric oxide (NO) system, that may cause an earlier onset of cardiovascular disease.

Objective : To explore the pleiotropic effect of Metformin on improving endothelial function.

Method and Results : A quasi experimental study of 62 hypertensive and pre-diabetic (IGT) patients showed a significant improvement of Flow Mediated Dilatation (FMD) within 3 months in those who received added theraphy of Metformin 500 mg twice daily (n=23) on their routine anti-hypertensive drugs (p<0,001). It also showed a moderate correlation between improvement of FMD that reflects the endothelial function with good achivement of targeted blood pressure (R 0,421). Linear regression analysis (adjusted analysis to confounder factors such as age, sex, BMI, history of smoking, aspilet added therapy, anti-hypertensive drugs) showed Metformin as the only factor that influenced the improvement FMD (OR 7,88; p<0,001).

Conclusion : This study showed that Metformin 2x500 mg as an add-on therapy in hypertensive pre-diabetic subject plays a positive role in improving the endothelial function as seen on the FMD measurement]