Hubungan pengukuran variabilitas tekanan darah dengan menggunakan Home Blood Pressure Monitoring terhadap Pulse Wave Velocity sebagai penilaian kekakuan arteri = Association between blood pressure variability measurement using Home Blood Pressure Monitoring and arterial stiffness measurement using Pulse Wave Velocity

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Abstrak

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Latar belakang : Kekakuan arteri berkaitan dengan peningkatan risiko kejadian kardiovaskular. Variabilitas tekanan darah dengan menggunakan ambulatory blood pressure monitoring telah terbukti sebagai prediktor prognosis kardiovaskular dan dapat menggambarkan kekakuan arteri. Penelitian ini bertujuan untuk menyelidiki hubungan variasi tekanan darah dengan menggunakan home blood pressure monitoring dengan pemeriksaan pulse wave velocity sebagai penilaian kekakuan arteri.
Metode : Penelitian potong-lintang dilakukan terhadap 57 subyek hipertensi yang belum terobati berusia 30-50 tahun. Subyek menjalani pemeriksaan PWV dan dilakukan monitoring tekanan darah menggunakan HBPM sebanyak 3 hari (setiap pagi dan malam, masing-masing dua kali pengukuran). Dilakukan juga penilaian terhadap variabel perancu (obesitas, diabetes, dislipidemia, penurunan fungsi ginjal).
Hasil : Sebanyak 21% subyek obesitas, 8,7% mengidap diabetes melitus, 60% mengalami dislipedemia, 14% merokok, tidak ada yang mengalami perburukan fungsi ginjal. Tidak ada hubungan antara obesitas, dislipidemia, merokok, jenis kelamin, merokok dengan kekakuan arteri. Diabetes melitus memliki hubungan yang signifikan dengan kekakuan arteri (p=0,01). Ada perbedaan antar pengukuran tekanan sistolik berdasarkan pengelompokan hari dan waktu, sebaliknya tidak ada perbedaan antar pengukuran tekanan diastolik. Terdapat korelasi antara kekakuan arteri dengan rata-rata tekanan darah diastolik (p=0,028), rata-rata tekanan darah diastolik pagi (p=0,015), koefisien variasi diastolik (p=0,030), koefisien variasi diastolik pagi (p=0,015).
Kesimpulan : Tidak terdapat hubungan variabilitas tekanan darah sistolik terhadap kekakuan arteri namun terdapat kecenderungan hubungan yang positif. Terdapat hubungan berbanding terbalik yang signifikan antara variabilitas tekanan darah diastolik dengan kekakuan arteri.
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ABSTRACT
Background : Arterial stiffness is related to higher risk of cardiovascular events. Blood pressure variability using ambulatory blood pressure monitoring has proven as a cardiovascular prognosis predictor and also serves as predictor of arterial stiffness. The study aims to prove the correlation between blood pressure variability measurement using home blood pressure monitoring and arterial stiffness measurement using pulse wave velocity
Methods : A cross-sectional study was conducted to 57 subjects with native hypertension between 30-50 years old. Subjects underwent PWV measurement and was monitored for their blood pressure using HBPM for three consecutive days (morning and night BP each repeated two times). Subjects also screened for related confoundings i.e., diabetes, obesity, dyslipidemia, renal function disturbance.

Results : As many as 21% subjects is obese, 8.7% had diabetes melitus, 60% had dyslipidemia, 14% is smoker. There is no subjects with renal function disturbance. There is no correlation between obesity, dyslipidemia, smoking habit, and sex to arterial stiffness, whereas diabetes melitus has a strong correlation to arterial stiffness (p=0,01). There was a significant difference between sytolic blood pressure measurement at each group of blood pressure based on day and time, but no difference found between diastolic blood pressure. There is significant correlation between arterial stiffness and mean diastolic pressure, mean morning diastolic pressure, variance coefficient of diastolic pressure, variance coefficient of morning blood pressure.
Conclusion : We conclude that HBPM is reliable in measuring blood pressure variability. There is no significant relation of systolic blood pressure variability to arterial stiffness, but there is a tendency of positive correlation. While there is a significant negative correlation between diastolic pressure to arterial stiffness., Background : Arterial stiffness is related to higher risk of cardiovascular events.
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