

# Perbedaan pola sirkadian tekanan darah pada pasien penyakit ginjal kronik pra dan pasca transplantasi ginjal di RSCM = The difference of circadian pattern of blood pressure in patients with chronic kidney disease before and after kidney transplantation in Cipto Mangunkusumo hospital

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## Abstrak

Pola sirkadian tekanan darah (TD) adalah gambaran TD 24 jam berupa kurva TD yang meningkat pada pagi hari, menurun pada siang / sore hari dan terendah pada malam hari / waktu tidur. 24 hours Ambulatory Blood Pressure Monitoring (24 hrs ABPM) merupakan alat pengukur TD yang lebih akurat dan dapat memperlihatkan pola sirkadian TD 24 jam. Turunnya TD 10 - 20% pada malam hari disebut dipper, jika turun < 10% disebut nondipper. Meningkatnya TD 24 jam dan nondipper merupakan faktor risiko morbiditas dan mortalitas kardiovaskular. Prevalensi hipertensi dan nondipper pada Penyakit Ginjal Kronik Stadium 5 dalam Terapi Dialisis (PGK 5D) masih sangat tinggi. Faktor utama penyebab hipertensi pada PGK 5D adalah menurunnya Laju Filtrasi Glomerulus (LFG) dan meningkatnya cairan ekstraselular. Transplantasi ginjal akan memperbaiki TD dan nondipper dengan membaiknya LFG, meningkatnya produksi urin dan menurunnya cairan ekstraseluler. Namun demikian satu bulan Pasca Transplantasi Ginjal kebutuhan dosis obat imunosupresan masih cukup tinggi yang dapat mengakibatkan hambatan penurunan TD.

Tujuan : Mengetahui perbedaan pola sirkadian TD, data dipper / nondipper dan rerata TD 24 jam pada pasien PGK Pra dan satu bulan Pasca Transplantasi Ginjal.

Metode Penelitian : Studi Pre experimental dengan before and after design. Subjek penelitian pasien PGK 5D / Pra Transplantasi Ginjal berusia 18 ? 60 tahun, dilakukan di RSCM pada bulan Oktober sampai dengan Desember 2014. Jumlah subjek sebanyak 15 orang. Dilakukan pengumpulan urin 24 jam, pemeriksaan LFG, pengukuran TD 24 jam dengan 24 hrs ABPM, Pra dan satu bulan Pasca Transplantasi Ginjal. Analisis statistik dengan uji McNemar dan uji t dependen.

Hasil : Terdapat 12 subjek nondipper dan 3 subjek dipper pada pasien PGK Pra Transplantasi Ginjal. Satu bulan Pasca Transplantasi Ginjal seluruh subjek (15 orang) memperlihatkan keadaan nondipper. Uji McNemar tidak dapat dilakukan karena seluruh subjek PGK satu bulan Pasca Transplantasi Ginjal nondipper (homogen). Terdapat penurunan rerata TD sistolik 24 jam pasien PGK satu bulan Pasca Transplantasi Ginjal yang tidak signifikan ( $p > 0,05$ ) dan penurunan rerata TD diastolik 24 jam yang signifikan ( $p < 0,05$ ).

Simpulan : Belum terdapat perbaikan nondipper pada pasien satu bulan Pasca Transplantasi Ginjal. Terdapat penurunan rerata TD sistolik 24 jam yang tidak signifikan dan penurunan rerata TD diastolik 24 jam yang signifikan pada pasien satu bulan Pasca Transplantasi Ginjal.

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The circadian pattern of blood pressure (BP) is a 24 hours blood pressure (24hrs BP) curve which increases in the morning, decreases in the afternoon/evening and the lowest state is at night/bedtime. 24 hrs Ambulatory Blood Pressure Monitoring (ABPM) is a BP measuring device that is accurate and can exhibit a

circadian pattern of 24 hrs BP. The fall of BP 10-20% at night is called as a dipper, while less than 10% is called as a nondipper. The increasing of 24 hrs BP and nondipper are the risk factor for cardiovascular morbidity and mortality. The prevalence of hypertension and nondipper in Chronic Kidney Disease stage 5 on Dialysis (CKD 5D) are still very high. The main factors causing hypertension in CKD 5D are decreased Glomerular Filtration Rate (GFR) and increased extracellular fluid. Kidney transplantation will improve BP and nondipper by GFR improvement, increases urine production and decreases extracellular fluid. However, one month after kidney transplantation, the dose of immunosuppressant drugs is relatively high, which is an obstacle to decrease BP.

**Aim:** To determine differences in the circadian pattern of BP, the data of dipper and nondipper, and the mean of 24 hrs BP in CKD before, and one month after kidney transplantation.

**Methods:** Design of the study is before and after design. Subjects of the study were patients with CKD 5D before kidney transplantation, aged 18-60 years, were conducted in Cipto Mangunkusumo Hospital during October to December 2014. 15 subjects were included in the study. 24 hrs urine collection, GFR, 24 hrs BP measurement with 24 hrs ABPM were recorded in all subjects, before and one month after kidney transplantation. McNemar test and t dependent test were used in statistical analysis.

**Results:** Before kidney transplantation, 12 of 15 subjects were nondippers while the others 3 subjects were dippers. After kidney transplantation, all subjects (15 patients) were nondippers. McNemar test can not be used because all subjects one month after kidney transplantation were nondippers (homogeneous). The decreasing of the mean of 24 hrs systolic BP was found in all CKD one month after kidney transplantation, but statistically not significant ( $p>0.05$ ), while decreasing of the mean of 24 hrs diastolic BP was statistically significant ( $p<0.05$ ).

**Conclusion:** There were still no improvement in nondipper patients one month after kidney transplantation. There were a decrease in the mean of 24 hrs systolic BP but statistically not significant and a decrease in the mean of 24 hrs diastolic BP which is statistically significant in patients one month after kidney transplantation.