Hubungan peningkatan kadar eritropoietin dan jumlah endothelial progenitor cell dengan perbaikan fungsi endotel pada penderita gagal ginjal 3 bulan setelah = The Association between elevated levels of erythropoietin and the number of endothelial progenitor cell with improvement of endothelial function in renal failure patients 3 mounths after kidney transplantation

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Abstrak

Latar belakang: Transplantasi ginjal dapat memperbaiki fungsi endotel. Berbagai penelitian membuktikan bahwa peningkatan kadar eritropoietin (Epo) dapat mengaktifasi dan memobilisasi Endothelial Progenitor Cell (EPC) sehingga mampu memperbaiki fungsi endotel melalui proses angiogenesis dan neovaskularisasi. Membaiknya fungsi endotel akan menurunkan angka kesakitan dan kematian akibat penyakit kardiovaskular pada penderita PGK.
Tujuan: Untuk mengetahui hubungan peningkatan kadar Epo dan jumlah EPC CD34+ serta CD133+ dengan perbaikan fungsi endotel pada penderita gagal ginjal 3 bulan setelah transplantasi ginjal.
Metode Penelitian: Potong lintang sebelum dengan 3 bulan setelah transplantasi ginjal pada penderita gagal ginjal yang menjalani transplantasi ginjal di RSCM. Jumlah subyek 21 orang yang dikumpulkan dalam kurun waktu Juli 2013 - Februari 2014. Pengambilan sampel darah untuk memeriksa kadar Epo, jumlah EPC CD34+ dan CD133+ dan kadar asimetrik dimetilarginin (ADMA) dilakukan sebelum dan 3 bulan setelah transplantasi ginjal. Analisis statistik dengan uji korelasi Pearson atau Spearman.
Hasil: Penelitian ini menunjukkan adanya peningkatan kadar Epo tetapi tidak bermakna secara statistik ($p>0.05$), sedangkan jumlah EPC CD34+ dan CD133+ meningkat ($p<0.05$), serta kadar ADMA menurun yang bermakna secara statistik ($p<0.05$). Tiga bulan setelah transplantasi ada korelasi bermakna antara peningkatan kadar Epo dengan jumlah EPC CD34+ ($r = 0.466$; $p < 0.05$). Tidak ada hubungan peningkatan kadar Epo dan jumlah EPC CD34+ serta CD133+ dengan perbaikan fungsi endotel 3 bulan setelah transplantasi ginjal.
Kesimpulan: Tiga bulan setelah transplantasi ginjal didapatkan adanya peningkatan kadar Epo, jumlah EPC CD34+ dan CD133+ serta penurunan kadar ADMA. Tetapi tidak ada korelasi peningkatan kadar Epo dan jumlah EPC CD34+ serta CD133+ dengan perbaikan fungsi endotel dalam rentang 3 bulan setelah transplantasi ginjal.
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Background: Kidney transplantation improved endothelial function. Various studies have shown that elevated level of erythropoietin (Epo) could activate and mobilize Endothelial Progenitor Cell (EPC), thus would improve endothelial function through the process of angiogenesis and neovascularization. The improvement of endothelial function will decrease morbidity and mortality from cardiovascular disease in patients with CKD.
Aim: To determine association between elevated level of Epo and the numbers of EPC CD34+ - CD133+ with the improvement of endothelial function in patients three months after kidney transplantation.
Methods: cross sectional study prior and 3 months after kidney transplantation in patients with renal failure

who underwent kidney transplantation in RSCM. The study included 21 subjects who enrolled from July 2013 to February 2014. Blood samples prior and 3 months after kidney transplantation were collected to evaluate the level of Epo, numbers of EPC CD34+ and CD133+ and level of assymetric dimethylarginine (ADMA). Statistical analysis was performed using Pearson or Spearman correlation test.
Resulys: The results of the study showed that prior to kidney transplantation, level of Epo was increased but not statistically significant ($p>0.05$). The EPC numbers of CD34+ and CD133+ were significantly increased ($p<0.05$), whereas the ADMA level was significantly decreased ($p<0.05$). Three months after transplantation showed a significant association between elevated level of Epo and the numbers of EPC CD34+ ($r = 0.466$, $p > 0.05$). There was no association between the elevated level of Epo and the numbers of EPC CD34+ and CD133+ with the improvement of endothelial function three months after kidney transplantation.
Conclusion: Three months after kidney transplantation showed an elevated level of Epo, the numbers of EPC CD34+ and CD133+ and the decreased level of ADMA. However, there was no association between the elevated level of Epo and the numbers of EPC CD34+ and CD133+ with the improvement of endothelial function in patients 3 months after kidney transplantation.