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Korelasi kadar endotelin-1 vena pulmoner terhadap resistensi vaskular paru sebelum dan sesudah pembedahan katup mitral dengan hipertensi pulmoner = The Correlation of pulmonary vein endothelin-1 level with pulmonary vascular resistance before and after mitral valve surgery with pulmonary hypertension

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Abstrak

Latar Belakang : Peningkatan resistensi vaskular paru (RVP) pasien stenosis mitral (SM) disebabkan oleh proses reaktif hipertensi pulmoner (HP) sehingga mempengaruhi luaran klinis pascabedah katup mitral. Endotelin-1 (ET-1) sebagai mediator vasoaktif berperan penting pada HP reaktif. Belum ada penelitian yang menghubungkan kadar ET-1 vena pulmoner (VP) dengan RVP.
Tujuan Penelitian : Menilai korelasi kadar ET-1 VP terhadap RVP sebelum dan sesudah pembedahan katup mitral pada pasien SM dengan HP.
Metode : Penelitian ini merupakan studi potong lintang pada 28 pasien SM berat dengan HP sedang dan berat yang menjalani pembedahan katup mitral di Pusat Jantung Nasional Harapan Kita dari bulan April hingga November 2014. Dilakukan analisa statistik untuk mencari korelasi antara kadar ET-1 VP dengan RVP sebelum dan sesudah pembedahan katup mitral.
Hasil Penelitian : Terdapat korelasi antara kadar ET-1 VP dengan RVP prabedah (r=0,49, p=0,008), sedangkan dengan RVP pascabedah tidak berkorelasi bermakna (r=0,204, p=0,32). Analisa regresi linear antara kadar ET-1 VP dengan RVP prabedah setelah disesuaikan dengan variabel perancu hipertensi, diabetes melitus tipe 2, fibrilasi atrial, penggunaan penyakat beta dan diuretik didapatkan r=0,5 koefisien 1,04 dengan interval kepercayaan (IK) 95% (0,401-1,691) p=0,003, sedangkan dengan RVP pascabedah setelah disesuaikan dengan variabel perancu hipertensi, penghambat ACE/ARB, penyakat beta, vasodilator, waktu cross clamp didapatkan r=-0,08 koefisien -0,2 dengan IK 95 % (-0,99-0,5) p=0,5.
Kesimpulan : Terdapat korelasi positif bermakna dengan kekuatan sedang antara kadar ET-1 VP dengan RVP prabedah, Peningkatan kadar ET-1 VP sebesar 1 pg/ml, akan meningkatkan RVP prabedah sebasar 1,04 WU. Kadar ET-1 VP tidak memiliki korelasi bermakna terhadap RVP pascabedah.
<hr><i>Background : The increased of Pulmonary Vascular Resistance (PVR) in mitral stenosis (MS) patient occurs in reactive pulmonary hypertension, and it affects clinical outcome after mitral valve surgery. Endothelin-1 (ET-1) as vasoconstrictive agent have important role in reactive pulmonary hypertension so far there is no study that corelate pulmonary vein (PV) ET-1 with PVR in MS.
Objectives : To study the correlation of PV ET-1 level with PVR measured by echo before and after mitral valve surgery in patient MS with pulmonary hypertension.
Methods : Twenty eight MS patients with moderate and severe pulmonary hypertension who underwent mitral valve surgery at National Cardiovascular Centre Harapan Kita from April to November 2014. Statistical analysis was done to see the correlation of PV ET-1 level with PVR before and after mitral valve surgery. Blood sample was taken from VP in the operating room and analyzed with Quantikine® ELISA ET-1 Immunoassay. PVR was measured by PVR-AMS formula by echocardiography.
Result : There was a correlation between PV ET-1 and PVR pre surgery (r=0,49, p=0,008), whereas, there

was no significant correlation with PVR post surgery (r=0,204, p=0,32). Linear regression analysis was performed, PV ET-1 and PVR pre surgery were adjusted to confounding variables hypertension, diabetes mellitus, atrial fibilation, use of beta blocker and diuretic; r=0,5 coefisien level 1,04 with confidance interval (CI) 95 % (0,401-1,691), p=0,003. PVR post surgery was adjusted to confounding variables hypertension, dislipidemia, use of ACE-I/ARB, beta blocker, vasodilator, cross clamp time, r=-0,08 coefisien level -0,2 with CI 95 % (-0,99-0,5), p=0,5.
Conclusion : There was a moderate positive correlation between PV ET-1 with PVR pre surgery, the increased of PV ET-1 level 1 pg/ml, would increase PVR level 1,04 WU. There was no significant correlation between PV ET-1 with PVR post surgery.</i>