Pengaruh Intra-Aortic Balloon Pump (Iabp) Sebelum Revaskularisasi Terhadap Mortalitas Pasien Infark Miokard Dengan Komplikasi Renjatan = Role of Intra Aortic Balloon Pump Prior to Percutaneous Revascularization in Acute Myocardial Infarction Complicated with Cardiogenic Shock

Dafsah Arifa Juzar, author

Abstrak

Level rekomendasi penggunaan rutin intra-arotic balloon pump (IABP) pada pasien dengan renjatan kardiogenik diturunkan menjadi level III. Manfaat penggunaan IABP sebelum revaskularisasi belum diinvestigasi secara uji klinis acak. Tujuan studi ini untuk menilai pengaruh penggunaan IABP sebelum revaskularisasi pada pasien infark miokard akut dengan komplikasi renjatan kardiogenik.
Uji klinis acak pembanding terbuka dilakukan di Pusat Jantung Nasional Harapan Kita periode januari 2018 hingga Mei 2020. Randomisasi dilakukan pada 69 subjek infark miokard dengan renjatan kardiogenik. Alokasi kelompok kontrol 34 subjek dan perlakuan (IABP sebelum revaskularisasi) 35 subjek. Luaran primer adalah mortalitas rumah sakit dan pasca revaskularisasi hari ke_30. Luaran sekunder perfusi global (bersihan asam laktat jam ke_12), perfusi regional (kreatinin), performa jantung yang dinilai secara ekokardiografi (Global longitudinal strain) dan penanda biologis untuk regangan miokard (NT-proBNP dan ST2). Variabel hemodinamik ekokardiografi dan komplikasi tindakan juga dilaporkan.
Setelah drop out, Analisis perprotokol dilakukan pada 18 subjek kelompok kontrol dan 16 subjek kelompok perlakuan. Mortalitas rumah sakit dan 30 hari pasca revaskularisasi, 12 (66,7%) subjek pada kelompok kontrol dan 9 (56,3%) subjek pada kelompok perlakuan, p 0,533. Pada luaran sekunder tidak ditemukan perbedaan bermakna pada kedua kelompok untuk bersihan laktat efektif jam ke-12; pemeriksaan kreatinin, global longitudinal strain, hemodinamik ekokardiografi dan nilai NT-proBNP dan ST2. Pada hari ke_3, kurva kaplan meier berpisah dan mortalitas RS dini pada kelompok kontrol 9 (50%) subjek dan pada kelompok perlakuan 1 (6,25%) subjek, hasil uji fisher p 0,013. Mortalitas RS lanjut berhubungan dengan IABP dan sepsis. Dua patomekanisme diusulkan untuk menerangkan patomekanisme kematian pada kelompok kontrol dan kelompok perlakuan
Simpulan: Penggunaan IABP sebelum revaskularisasi pada subjek infark miokard akut dengan komplikasi renjatan kardiogenik tidak memperbaiki mortalitas rumah sakit dan pasca perawatan hari ke-30. Pada kelompok kontrol diusulkan patomekanime mortalitas serangan fisiologis kali satu. Kelompok perlakuan, patomekanime mortalitas diusulkan serangan fisiologis kali dua.
.....The guideline recommendation on routine use of Intra Aortic balloon pump (IABP) in cardiogenic shock had been downgraded to level recommendation III. The role of IABP insertion before revascularization has never been investigated in randomized control trial. The aim of this study is to investigate the role of IABP insertion before revascularization in acute myocardial infarction complicated by cardiogenic shock.
Randomized control trial was performed in National Cardiac Center Harapan Kita at the period January 2018–April 2020. We randomly assigned 69 patients cardiogenic shock due to acute myocardial infarction. There are 34 patients assigned to control group (no IABP) and 35 patients assigned to intervention group (IABP before revascularization). Percutaneous Coronary Intervention and medical care were performed

according to local protocol. The primary end points were in-hospital mortality and mortality at 30 days post revascularization. The secondary end points were perfusion (lactate clearance, creatinine), cardiac performance (global longitudinal strain), Biomarker for myocardial stretch (NT-proBNP & ST2). Echo hemodynamic and complication variables were also reported.
After drop out, a total of 18 patients in the control group and 16 patients in intervention group (IABP before revascularization were included in per protocol analysis for the primary and secondary end points. The primary end result of in hospital mortality and 30 days post revascularization mortality were identical in 12 patients in the control group (66.7%) and 9 patients in the intervention group (56.3%), p 0,533. There were no significant differences in secondary end points, effective lactate clearance at 12 hour, creatinine, Global Longitudinal Strain, NT-proBNP, ST2 including echo hemodynamic, dose of catecholamine therapy and sepsis. At the third day, Kaplan Meier curve demonstrated early separation with significant difference in mortality 9 patients in the control group (50%) and 1 patients in the intervention group (6,25%), p 0,013. Late in hospital was associated with IABP and sepsis. There was also a trend of greater elevation of NT-proBNP on day 3 in the intervention group. Therefore, pathomechanisms of death for control group and intervention group were proposed.

Conclusion: The use IABP before percutaneous intervention in patient shock cardiogenic due to acute myocardial infarction did not improve clinical outcome in hospital mortality or 30 days post Revascularization. One hit of physiological deterioration model for cardiogenic cardiogenic shock patient and two hit of physiological deterioration model for cardiogenic shock patient treated with IABP before revascularization were proposed.