Hubungan tindakan operasi jantung paliatif dan sindrom curah jantung rendah terhadap perubahan nilai NT-pro BNP: studi pendahuluan = Correlation of heart's paliative operation and low cardiac output syndrome to changes in NT-pro BNP values: preliminary study

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Abstrak

Latar belakang: Penyakit jantung bawaan merupakan jenis kelainan bawaan lahir paling umum, dan merupakan penyebab kematian tersering pada bayi. Sindrom curah jantung rendah masih merupakan masalah yang dihadapi pada subjek pediatrik pascaoperasi jantung terbuka. Deteksi sindrom curah jantung rendah dengan kriteria klinis dan indikator laboratorik masih dirasa belum cukup, yang terbukti dengan masih adanya angka morbiditas dan mortalitas. Peranan penanda biologis NT-proBNP diharapkan dapat digunakan untuk dapat mendeteksi sindrom curah jantung rendah pada pediatrik.
Metode: Penelitian pendahuluan kohort retrospektif dengan jumlah 47 subjek yang memenuhi kriteria inklusi dan eksklusi yang menjalani pembedahan jantung terbuka paliatif; PA banding, Bidirectional cavopulmonary shunt, BT-shuntdan Fontan, pada periode Oktober 2019 hingga Maret 2020 di Rumah Sakit Jantung dan Pembuluh darah Nasional Harapan Kita, Indonesia. Data prabedah, intrabedah dan pascaoperasi termasuk kejadian sindrom curah jantung rendah dicatat. Kadar NT-proBNP akan diambil prabedah, 4 jam, 24 jam dan 72 jam pascaoperasi. Analisis data menggunakan uji Mann-Whitney.
Hasil: Kadar NT-proBNP pada prosedur palitif khususnya Fontan pada prabedah (137 pg/ml), 4 jam pascaoperasi (685 pg/ml), 24 jam pascaoperasi (5.715 pg/ml), dan 72 jam pascaoperasi (970 pg/ml). Kadar NT-proBNP prabedah, 4 jam pascaoperasi, 24 jam pascaoperasi, dan 72 jam pascaoperasi tidak berbeda bermakna dengan kejadian sindrom curah jantung rendah (nilai p >0,05).
Kesimpulan: Ditemukan peningkatan nilai NT-Pro BNP pada subjek pascaoperasi jantung paliatif khususnya Fontan dan bidirectional cavopulmonary shunt yang mengalami sindrom curah jantung rendah pada jam ke-24. Namun kesimpulan diatas masih berdasarkan jumlah sampel dengan kekuatan penelitian <80% sehingga hanya berlaku sebagai kesimpulan sementara berdasarkan studi pendahuluan.
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Background: Congenital heart disease is the most common type of birth defects, and is the most common cause of death in infants. Cardiac syndrome is still a problem faced by pediatric patients after heart surgery. Detection of Low Cardiac Output Syndrome with clinical criteria and laboratory indicators is still considered insufficient, which is proven to still contain morbidity and mortality rates. The role of NT-proBNP biological markers is expected to be used to support the detection of low cardiac output syndrome in pediatrics.
Methods: A Preliminary retrospective cohort with 47 subjects fulfilling the inclusion and exclusion criteria who underwent palliative open heart surgery PA banding, Bidirectional cavopulmonary shunt, BT-shunt and Fontan from October, 2019 to March, 2020 at the Harapan Kita National Heart and Vascular Hospital, Indonesia. Preoperative, operative and postoperative data including the incidence of low cardiac output syndrome were recorded. NT-proBNP levels will be taken pre-surgery, 4 hours, 24 hours and 72 hours after

surgery. Data analysis using the Mann-Whitney test.
Results: NT-proBNP levels in the cardiac palliative surgery especially Fontan procedure at pre-surgery (137 pg/mL), 4 hours after surgery (685 pg/mL), 24 hours after surgery (5,715 pg/mL), and 72 hours after surgery (970 pg/mL). NT-proBNP levels at pre-surgery, 4 hours after surgery, 24 hours after surgery, and 72 hours after surgery were not significantly different from the incidence of low cardiac output syndrome (p value> 0.05).
Conclusion: There is an increase in NT-Pro BNP values in subjects with Fontan palliative heart surgery and bidirectional cavopulmonary shunt. However, the above conclusions are still based on the number of samples with research powers<80% and can only be taken as a provisional conclusion based on preliminary studies.