

# Peranan n terminal - probrain natriuretic peptide dalam diagnosis duktus arteriosus persisten hemodinamik signifikan pada bayi prematur = The Rule of n-terminal - probrain natriuretic peptide in the diagnosis of hemodinamically significant ductus asrteriosus in pretern patient neonates

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## Abstrak

Latar Belakang: Duktus arteriosus persisten (patent ductus arteiosus, PDA) merupakan penyakit jantung bawaan yang sering ditemukan pada bayi, terutama bayi prematur. Ekokardiografi menjadi baku emas untuk mendiagnosis PDA dengan gangguan hemodinamik signifikan (hs-PDA) pada bayi prematur. Beberapa penelitian telah membuktikan bahwa, pemeriksaan biomarker darah Amino-Terminal pro-Brain Natriuretic Peptide (NT-proBNP) bermanfaat untuk diagnosis dan penatalaksanaan hs-PDA. Namun, di Indonesia penelitian seperti ini belum pernah dilakukan; padahal akurasi diagnostik NT-proBNP untuk hs-PDA sangat dipengaruhi oleh karakteristik assay (assay kit dan nilai ambangnya), serta karakteristik pasien (gestational dan usia kronologis).

Tujuan: Untuk mengetahui hubungan antara nilai NT-proBNP dan hs-PDA

Metode: Penelitian potong lintang dilakukan di RSCM dari bulan Desember 2015? Febuari 2016 terhadap 49 neonatus prematur dengan usia gestasi <37 minggu dan berat lahir di bawah 2000 gram. Diagnosis PDA dipastikan dengan menggunakan ekokardiografi. Pasien dikelompokkan menjadi kelompok tanpa PDA, non hs-PDA dan hs-PDA. Pemeriksaan NT-proBNP dikerjakan pada neonatus dengan PDA, kemudian dibandingkan nilai NT-proBNP pada kelompok non hs-PDA dan hs-PDA.

Hasil: Pada 49 subyek yang diteliti, terdapat 33 neonatus dengan PDA, 16 diantaranya dengan hs-PDA.

Terdapat korelasi bermakna antara nilai NT-proBNP dengan hs-PDA ( $p < 0,0001$ ).

Kesimpulan: Peningkatan NT-proBNP berkorelasi dengan PDA hemodinamik signifikan.

<hr>Background: Persistent ductus arteriosus is one of the most frequently congenital heart disease found in infant mainly in preterm infant. Echocardiography is the gold standard for the diagnosis of hemodinamically significant patent ductus arteriosus (hs-PDA) in preterm neonates. There are few studies demonstrate that the examination of simple blood assay such as N Terminal-proBrain Natriuretic Peptide (NT- proBNP) may be useful in determining the diagnosis and management of hs-PDA. However in Indonesia there are no studies have been done before even though the level of NT-proBNP accuracy in determining hs-PDA is influenced by the assay kit, and the characteristic of the patient (gestational age and chronological age).

Objective: To determine the association between NT-proBNP level and the prevalence of hs-PDA.

Methods: Across sectional study was conducted at Dr. Cipto Mangunkusumo Hospital from Desember 2015 to February 2016. Forty-nine preterm neonates with gestational age less than 37 weeks and birthweight of less than 2000 gram were performed echocardiography to determine PDA, subsequently these patients were divided into three groups: non PDA, non hs-PDA, and hs-PDA. Further, in the non hs-PDA and hs-PDA groups, blood NT pro-BNP was examined. We then compared the level of NT pro-BNP between these groups.

Results: Among 49 neonates, there were 33 patients with PDA, of those 16 patients were hs-PDA. There

was an association between the level of NT pro-BNP and hs-PDA ( $p < 0,0001$ ).

Conclusion: This study found a significant association between the NT-proBNP level and hs-PDA