

ABSTRACT

Background: *Hemodynamically Significant Patent Ductus Arteriosus* (hs-PDA) is a common problem in preterm infant. Delayed diagnosis and treatment could result in significantly increased morbidity and mortality. Echocardiography had several limitation to be performed. hs-PDA scoring system has been proposed to make diagnosis and treatment promptly.

Objective: To develop a diagnostic score for hs-PDA in premature infant

Method: A cross sectional study was conducted among < 34 weeks gestational of age and VLBW babies admitted to NICU dr Sardjito Hospital during March – June 2019. Diagnosis hs-PDA was confirmed through echocardiography. Spiegelhalter Knill-Jones approach was used to develop four new hs-PDA diagnostic score. Accuracy of diagnostic score was performed using a ROC curve.

Results: Of 58 subjects, 18 was hs-PDA (31,04%). Four scoring systems were proposed. Using the Spiegelhalter Knill-Jones approach, diagnostic criteria were tachycardia, sistolik murmur, precordial pulse, bounding pulse, respiratory deterioration and perfusion index. ROC curve from *New hs-PDA Score* (NHS) yielded an area under curve (AUC) 0,61. Using the cut off value -3,5 this score had sensitivity 61,2% and specificity 58%. The total score of *Simplified New hs-PDA Score* (SNHS) ≥ 0 had sensitivity 88,9%, specificity 87,5% and AUC 0,95 on ROC curve. Using cut off value ≥ 5 for *Extended hs-PDA Score* (EHS) and ≥ 1 for *Simple Extended hs-PDA Score* (SEHS), both of two systems had sensitivity 94,4% and specificity 82,5% with AUC 0,95 and 0,94 respectively.

Conclusion: An diagnostic score for hs-PDA was established. A total SNHS ≥ 0 and SEHS ≥ 1 can diagnose hs-PDA in premature infant less than 34 weeks.

Keyword : hs-PDA, scoring system, diagnostic value

INTISARI

Latar belakang : *Hemodynamically Significant Patent Ductus Arteriosus* (hs-PDA) merupakan masalah yang sering terjadi pada bayi kurang bulan. Keterlambatan diagnosis dan pemberian terapi akan meningkatkan morbiditas dan mortalitas. Terdapat keterbatasan penggunaan ekokardiografi sebagai baku emas diagnosis. Skor diagnostik hs-PDA dapat digunakan untuk membuat diagnosis dan terapi yang cepat dan tepat

Tujuan : Mengembangkan sistem skoring diagnosis hs-PDA pada bayi kurang bulan

Metode : Kami melakukan penelitian potong lintang pada bayi berat lahir <1500 gram atau umur kehamilan <34 minggu yang dirawat di Instalasi Maternal Perinatal RSUP dr Sardjito mulai bulan Maret – Juni 2019. Metode Spieghalter Knill-Jones digunakan untuk mengembangkan skor diagnosis. Akurasi ditentukan dengan kurva ROC. Ekokardiografi digunakan sebagai baku emas diagnosis hs-PDA.

Hasil : Dari 58 bayi yang memenuhi kriteria, 18 (31,04%) terdiagnosis hs-PDA. Dikembangkan empat sistem skor dengan menggunakan variabel yang memenuhi kriteria yaitu takikardia, bising sistolik, pulsasi prekordial, *bounding pulse*, perburukan respirasi dan indek perfusi. *New hs-PDA Score* (NHS) dengan titik potong nilai total $\geq -3,5$ memiliki sensitivitas 61,2%, spesifisitas 58,0% dan nilai area ROC 0,61. Nilai area ROC untuk *Simplified New hs-PDA Score* (SNHS) pada titik potong nilai total ≥ 0 adalah 0,95 dengan sensitivitas 88,9% dan spesifisitas 87,5%. Nilai diagnostik sistem *Extended hs-PDA Score* (EHS) ≥ 5 dan sistem *Simple Extended hs-PDA Score* (SEHS) ≥ 1 secara berurutan yaitu, nilai area ROC 0,95 dan 0,94 dengan sensitivitas dan spesifisitas yang sama yaitu 94,4% dan 82,5%

Simpulan : Sistem SNHS ≥ 0 dan SEHS ≥ 1 dapat digunakan untuk mendiagnosis hs-PDA pada bayi kurang bulan.

Kata kunci : hs-PDA, sistem skoring, nilai diagnostik