Nilai strong ion difference berdasarkan selisih ion natrium dan klorida pada pasien infeksi dengue dewasa dengan dan tanpa kebocoran plasma = Strong ion difference based on sodium chloride difference on adult dengue infected patients with and without plasma leakage

Edwin Leopold Jim, author

Abstrak

ABSTRAK
Latar Belakang : Kebocoran plasma merupakan proses utama yang terjadi pada demam berdarah dengue (DBD) dimana mulai terjadi pada hari ke-3 demam dan mencapai puncaknya pada hari ke-5 demam. Kebocoran plasma menyebabkan hipoksia jaringan yang berakibat asidosis. Variabel yang terkait dengan mikrosirkulasi perfusi jaringan yaitu parameter asam-basa. Menurut Stewart, abnormalitas asam-basa metabolik ditentukan dengan menghitung Strong Ion Difference (SID). Hingga saat ini belum diketahui nilai SID pada infeksi dengue dewasa dengan kebocoran plasma.
Tujuan Penelitian : Mengetahui peran nilai SID untuk memprediksi dan mendiagnosis kebocoran plasma pada infeksi dengue pasien dewasa.
Metode : Studi potong lintang dan kohort retrospektif, pada infeksi virus dengue pasien dewasa yang dirawat di ruang penyakit dalam RSUPN Cipto Mangunkusumo dan RSUP Persahabatan Jakarta. Dilakukan pemeriksaan nilai SID untuk melihat perbedaan rerata nilai SID antara demam dengue (DD) dan DBD dengan uji t tidak berpasangan, dan nilai titik potong SID pada keadaan dengan atau tanpa kebocoran plasma dilakukan dengan menentukan sensitivitas dan spesifisitas terbaik dari kurva ROC.
Hasil : Jumlah subjek sebanyak 57 orang. Jenis kelamin laki-laki sebanyak 31 pasien (54,38%) dan perempuan 26 pasien (45,61%). Kasus DD 31 pasien (54,38%) dan kasus DBD 26 pasien. Nilai SID hari ke-3 pada DBD secara bermakna lebih rendah dibandingkan DD [36,577 (±2,08) dan 39,032 (±1,44); p<0,01]. Demikian pula pada hari ke-5, nilai SID pada DBD lebih rendah dibandingkan DD [34,423 (±2,36) dan 37,548 (±2,55); p<0,01]. Hasil analisis statistik didapatkan perbedaan bermakna. Berdasarkan kurva ROC pada hari ke-3 didapatkan nilai SID ≤37,5 sebagai titik potong yang memberikan sensitivitas 65% dan spesifisitas 84% dengan Area Under Curve (AUC) 0,824 (IK 95% 0,71 ? 0,93; p<0,001). Pada hari ke-5, titik potong nilai SID ≤36,5 memberikan sensitivitas 81% dan spesifisitas 68% dengan AUC 0,813 (IK 95% 0,7 ? 0,92; p<0,001).
Kesimpulan : Nilai SID hari ke-3 dan hari ke-5 pada DBD lebih rendah dibandingkan DD. Nilai SID ≤37,5 pada hari ke-3 dan ≤36,5 pada hari ke-5 dapat dipakai sebagai petanda kebocoran plasma.

<hr>
ABSTRACT
Background : Plasma leakage is the main process in dengue haemorrhagic fever (DHF) which starts at day 3 of fever and peaked at day 5 of fever. Plasma leakage is causing tissue hypoxia that resulting in acidosis. Tissue perfusion microcirculation-associated variable is acid-base parameters. According to Stewart, abnormality of metabolic acid-base is determined by calculating Strong Ion Difference (SID). Now, SID in adult dengue-infected patients with plasma leakage is not known yet.
Objectives : To detemine the role of SID in prediction and diagnosis of plasma leakage in adult dengue-infected patients.
Methods : These were cross-sectional and retrospective cohort study which conducted in adult dengue-infected patients that hospitalized in internal medicine ward of Cipto Mangunkusumo General Hospital and Persahabatan General Hospital in Jakarta. SID was examined to determine the mean difference between dengue fever (DF) and DHF by t-test independent, and cut-off point of SID in plasma leakage was identified by sensitivity and specificity based on ROC curve.
Results : There were 57 adult dengue-infected patients recruited; consist of 31 male patients (54,38%) and 26 female patient (45,61%); 31 DF patients (54,38%) and 26 DHF patients (45,6%). SID on day 3 of fever in DHF was significantly lower than DF [36,577 (±2,08) vs 39,032 (±1,44); p<0,01]. Similarly on day 5, SID of DHF 36,577 (±2,08) vs DF 39,032 (±1,44); p<0,01. Based on ROC curve of day 3, the cut-off point of SID was ≤37,5 with sensitivity 65%, specificity 84%, Area Under Curve (AUC) 0,824 (95% CI 0,71 ? 0,93; p<0,001). On day 5, the cut-off points of SID was <36,5 with sensitivity 81%, specificity 68%, AUC 0,813 (95% CI 0,7 ? 0,92; p<0,001).
Conclusion : SID on day 3 and day 5 of fever in DHF was significantly lower than DF. SID ≤37,5 on day 3 and ≤36,5 on day 5 can be used as a marker of plasma leakage.
;Background : Plasma leakage is the main process in dengue haemorrhagic fever (DHF) which starts at day 3 of fever and peaked at day 5 of fever. Plasma leakage is causing tissue hypoxia that resulting in acidosis. Tissue perfusion microcirculation-associated variable is acid-base parameters. According to Stewart, abnormality of metabolic acid-base is determined by calculating Strong Ion Difference (SID). Now, SID in adult dengue-infected patients with plasma leakage is not known yet.
Objectives : To detemine the role of SID in prediction and diagnosis of plasma leakage in adult dengue-infected patients.
Methods : These were cross-sectional and retrospective cohort study which conducted in adult dengue-infected patients that hospitalized in internal medicine ward of Cipto Mangunkusumo General Hospital and Persahabatan General Hospital in Jakarta. SID was examined to determine the mean difference between

dengue fever (DF) and DHF by t-test independent, and cut-off point of SID in plasma leakage was identified by sensitivity and specificity based on ROC curve. Results : There were 57 adult dengue-infected patients recruited; consist of 31 male patients (54,38%) and 26 female patient (45,61%); 31 DF patients (54,38%) and 26 DHF patients (45,6%). SID on day 3 of fever in DHF was significantly lower than DF [36,577 (±2,08) vs 39,032 (±1,44); p<0,01]. Similarly on day 5, SID of DHF 36,577 (±2,08) vs DF 39,032 (±1,44); p<0,01. Based on ROC curve of day 3, the cut-off point of SID was ≤37,5 with sensitivity 65%, specificity 84%, Area Under Curve (AUC) 0,824 (95% CI 0,71 ? 0,93; p<0,001). On day 5, the cut-off points of SID was <36,5 with sensitivity 81%, specificity 68%, AUC 0,813 (95% CI 0,7 ? 0,92; p<0,001).
Conclusion : SID on day 3 and day 5 of fever in DHF was significantly lower than DF. SID ≤37,5 on day 3 and ≤36,5 on day 5 can be used as a marker of plasma leakage. ;Background : Plasma leakage is the main process in dengue haemorrhagic fever (DHF) which starts at day 3 of fever and peaked at day 5 of fever. Plasma leakage is causing tissue hypoxia that resulting in acidosis. Tissue perfusion microcirculation-associated variable is acid-base parameters. According to Stewart, abnormality of metabolic acid-base is determined by calculating Strong Ion Difference (SID). Now, SID in adult dengue-infected patients with plasma leakage is not known yet.
Objectives : To detemine the role of SID in prediction and diagnosis of plasma leakage in adult dengue-infected patients.
Methods : These were cross-sectional and retrospective cohort study which conducted in adult dengue-infected patients that hospitalized in internal medicine ward of Cipto Mangunkusumo General Hospital and Persahabatan General Hospital in Jakarta. SID was examined to determine the mean difference between dengue fever (DF) and DHF by t-test independent, and cut-off point of SID in plasma leakage was identified by sensitivity and specificity based on ROC curve.
Results : There were 57 adult dengue-infected patients recruited; consist of 31 male patients (54,38%) and 26 female patient (45,61%); 31 DF patients (54,38%) and 26 DHF patients (45,6%). SID on day 3 of fever in DHF was significantly lower than DF [36,577 (±2,08) vs 39,032 (±1,44); p<0,01]. Similarly on day 5, SID of DHF 36,577 (±2,08) vs DF 39,032 (±1,44); p<0,01. Based on ROC curve of day 3, the cut-off point of SID was ≤37,5 with sensitivity 65%, specificity 84%, Area Under Curve (AUC) 0,824 (95% CI 0,71 ? 0,93; p<0,001). On day 5, the cut-off points of SID was <36,5 with sensitivity 81%, specificity 68%, AUC 0,813 (95% CI 0,7 ? 0,92; p<0,001).
Conclusion : SID on day 3 and day 5 of fever in DHF was significantly lower than DF. SID ≤37,5 on day 3 and ≤36,5 on day 5 can be used as a marker of plasma leakage.