

KOMPARASI NILAI PERHITUNGAN SKOR KALSIUM PERANGKAT LUNAK SEMIAUTOMATIS Heartbeat-CS *MULTI SLICE COMPUTED TOMOGRAPHY* DENGAN PERANGKAT LUNAK SEMIAUTOMATIS OsiriX MD

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INTISARI

Latar Belakang. *Coronary Artery Calcification* (CAC) hanya ditemukan pada arteri yang mengalami aterosklerosis, pada pemeriksaan menggunakan sinar X memberikan gambaran bintik terang sehingga dapat dinilai secara kuantitas dalam bentuk skor kalsium menggunakan *Multi Slice Computed Tomography* (MSCT) dengan algoritma perhitungan tertentu.

Tujuan. Mencari kesepakatan nilai perhitungan skor kalsium yang dihitung menggunakan perangkat lunak semiautomatis Heartbeat-CS di *workstation* alat MSCT dibandingkan dengan perhitungan skor kalsium menggunakan perangkat lunak semiautomatis data pasca pemrosesan OsiriX MD di *workstation* independen.

Bahan dan Metode. Penelitian observasional *cross sectional* retrospektif ini menggunakan data sekunder pemeriksaan CT skor kalsium maupun CT koroner fase pre kontras. Dilakukan perhitungan skor kalsium pada setiap area kalsifikasi densitas ≥ 130 HU dengan ukuran ≥ 1 mm² di *Left Main* (LM), *Left Anterior Ascending Artery* (LAD), *Left Circumflex Artery* (LCx), *Right Coronary Artery* (RCA), namun tidak termasuk cabang-cabangnya dan skor kalsium total menggunakan perangkat lunak semiautomatis Heartbeat-CS dan OsiriX MD. Nilai hasil perhitungan skor kalsium kedua metode tersebut dilakukan analisis komparasi menggunakan Uji *Wilcoxon* dan korelasi linier kedua metode pemeriksaan menggunakan Uji *Bland-Altman*.

Hasil. Pada uji *Wilcoxon* didapatkan nilai *significancy* (p) secara berurutan p = 0,022 pada LM; p = 0,009 pada LAD; p = 0,002 pada LCx; p = 0,158 pada RCA dan p = 0,000 pada nilai skor kalsium total. Selisih perbedaan nilai skor kalsium menggunakan perangkat lunak semiautomatis Heartbeat-CS dan perangkat lunak semiautomatis *plug in* OsiriX MD sebesar 25%. Uji *Bland-Altman* didapatkan hasil 96,3% sebaran *plot* terdistribusi di dalam rentang *Limit of Agreement* (LOA).

Kesimpulan. Terdapat perbedaan nilai skor kalsium pada perhitungan menggunakan perangkat lunak semiautomatis Heartbeat-CS dibandingkan dengan perangkat lunak semiautomatis OsiriX MD, namun terdapat kesepakatan kedua metode tersebut untuk perhitungan skor kalsium dengan selisih perbedaan 25% lebih besar pada perangkat lunak semiautomatis OsiriX MD.

Kata Kunci. Skor kalsium, Heartbeat-CS, OsiriX MD

COMPARATION OF CALCIUM SCORE CALCULATION VALUE SEMIAUTOMATIC SOFTWARE Heartbeat-CS MULTI SLICE COMPUTED TOMOGRAPHY WITH SEMIAUTOMATIC SOFTWARE OsiriX MD

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ABSTRACT

Background. Coronary Artery Calcification (CAC) was found only in the artery which had atherosclerotic proceed, X ray examination provided bright spot area hence calcium score value could be quantitatively calculated using Multi Slice Computed Tomography (MSCT) with certain algorithm.

Purpose. Finding the agreement on calculation of calcium score value used semiautomatic software Heartbeat-CS in MSCT workstation compared to the calculation of calcium score value used semiautomatic software post processing data OsiriX MD in independent workstation.

Materials and Methods. Retrospective cross sectional observational research used secondary data of calcium score CT and coronary CT in pre contrast phase. Calculation of calcium score value in all area which had calcification density ≥ 130 HU, ≥ 1 mm² dimension in Left Main (LM), Left Anterior Ascending Artery (LAD), Left Circumflex Artery (LCx), Right Coronary Artery (RCA) which not include the branches and total calcium score used semiautomatic software Heartbeat-CS and OsiriX MD. The calculation value those methods had been analytical compared using Wilcoxon test and the linier correlation agreement those methods had been evaluated using Bland Altman test.

Result. Significancy value (p) Wilcoxon test as follows p = 0,022 in LM; p = 0,009 in LAD; p = 0,002 in LCx; p = 0,158 in RCA and p = 0,000 in total calcium score. The difference calcium score value used semiautomatic software Heartbeat-CS and calcium score value used semiautomatic software post processing data OsiriX MD was 25%. The result in Bland Altman test was 96,3% plot distributed within Limit of Agreement (LoA).

Conclusion. There was a difference in calcium score value calculation between semiautomatic software Heartbeat-CS and semiautomatic software OsiriX MD, despite there was agreement in those methods for calcium score value calculation with a difference 25% higher in semiautomatic software OsiriX MD calculation.

Keywords. Calcium score, Heartbeat-CS, OsiriX MD