

## HUBUNGAN KOMBINASI DERAJAT KALSIFIKASI ARKUS AORTA DAN KARDIOMEGALI DENGAN MORTALITAS PASIEN STROKE ISKEMIK

Emma Puspadhini<sup>1</sup>, Arif Faisal<sup>2</sup>, Sri Retna Dwidanarti<sup>2</sup>, Agus Surono<sup>1</sup>,  
Wigati Dhamiyati<sup>2</sup>, Bambang Supriyadi<sup>2</sup>

<sup>1</sup>Program Studi Magister Ilmu Kedokteran Klinis dan <sup>2</sup>Departemen Radiologi, FK-KMK, Universitas Gadjah Mada, Daerah Istimewa Yogyakarta, Indonesia

### INTISARI

**Latar Belakang:** Stroke iskemik merupakan penyakit tidak menular dengan prevalensi dan mortalitas tertinggi. Aterosklerosis dan hipertensi merupakan faktor risiko terjadinya stroke iskemik yang parah. Aterosklerosis dapat dinilai berdasarkan gambaran kalsifikasi arkus aorta (KAA) dan hipertensi dapat memberikan gambaran kardiomegali.

**Tujuan:** Mengetahui hubungan kombinasi derajat KAA dan kardiomegali dengan mortalitas pasien stroke iskemik.

**Metode:** Penelitian ini merupakan studi analitik observasional dengan desain retrospektif. Data subjek penelitian diperoleh secara retrospektif menghasilkan 145 pasien stroke iskemik akut episode pertama yang menjalani foto toraks konvensional. KAA dan kardiomegali dianalisis hubungannya dengan status mortalitas selama perawatan. Uji regresi logistik dilakukan untuk mencari besaran risiko mortalitas dari empat kelompok (Kelompok A: KAA derajat 0,1 tanpa kardiomegali, B: KAA derajat 0,1 dengan kardiomegali, C: KAA derajat 2,3 tanpa kardiomegali, D: KAA derajat 2,3 dengan kardiomegali).

**Hasil:** Penelitian terhadap 145 pasien menunjukkan 13 pasien (8,9%) mengalami mortalitas. KAA dan kardiomegali berhubungan dengan mortalitas dan signifikan secara statistik ( $p=0,005$  dan  $p=0,032$ ). Kelompok D memiliki risiko mortalitas paling tinggi (aOR=56,67;  $p=0,003$ ).

**Kesimpulan:** Terdapat hubungan positif yang signifikan antara derajat kalsifikasi arkus aorta dan kardiomegali dengan mortalitas selama perawatan pasien stroke iskemik. Semakin berat derajat kalsifikasi arkus aorta ditambah dengan keberadaan kardiomegali, maka semakin besar risiko mortalitas selama perawatan pada pasien stroke iskemik.

**Kata kunci:** kalsifikasi arkus aorta, kardiomegali, mortalitas, stroke iskemik

## ASSOCIATION OF COMBINED AORTIC ARCH CALCIFICATION SEVERITY AND CARDIOMEGALY WITH MORTALITY IN ISCHEMIC STROKE

Emma Puspadhini<sup>1</sup>, Arif Faisal<sup>2</sup>, Sri Retna Dwidanarti<sup>2</sup>, Agus Surono<sup>3</sup>,  
Wigati Dhamiyati<sup>2</sup>, Bambang Supriyadi<sup>2</sup>

<sup>1</sup>Master in Clinical Medicine and <sup>2</sup>Radiology Departement, Faculty of Medicine,  
Public Health, and Nursing, Universitas Gadjah Mada, Daerah Istimewa  
Yogyakarta, Indonesia

### ABSTRACT

**Background:** Ischemic stroke is the leading cause of mortality for non-communicable diseases. Atherosclerosis and hypertension are major risk factors for severe ischemic stroke. Atherosclerosis can be assessed by the presence of aortic arch calcification (AAC), while hypertension may manifest as cardiomegaly.

**Objective:** To determine the association between the severity of AAC and cardiomegaly combined and mortality in patients with ischemic stroke.

**Methods:** This study was an observational analytic study with a retrospective design. Retrospective data collection identified 145 patients with first-episode acute ischemic stroke who underwent conventional chest radiography. The associations of AAC and cardiomegaly with in-hospital mortality were analyzed. Logistic regression analysis was performed to determine the magnitude of mortality risk across four groups (Group A: AAC grade 0,1 without cardiomegaly, B: AAC grade 0,1 with cardiomegaly, C: AAC grade 2,3 without cardiomegaly, D: AAC grade 2,3 with cardiomegaly).

**Results:** Among the 145 patients, 13 (8.9%) died during hospitalization. Both aortic arch calcification and cardiomegaly were significantly associated with mortality ( $p = 0.005$  and  $p = 0.032$ , respectively). Group D demonstrated the highest risk of mortality (adjusted odds ratio [aOR] = 56.67;  $p = 0.003$ ).

**Conclusion:** There is a significant positive association between the severity of aortic arch calcification and cardiomegaly and in-hospital mortality among patients with ischemic stroke. Increasing severity of aortic arch calcification combined with the presence of cardiomegaly is associated with a higher risk of mortality during hospitalization in patients with ischemic stroke.

**Keywords:** aortic arch calcification, cardiomegaly, mortality, ischemic stroke