



# RELATIONSHIP BETWEEN CARDIAC VALVULAR CALCIFICATION, CAROTID ATHEROSCLEROSIS, AND CORONARY CALCIFICATION IN PATIENTS WITH RHEUMATOID ARTHRITIS

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## Introduction

Cardiac valvular calcification (VC) has been linked with systemic atherosclerosis in the general population. The prevalence and relationship of VC with arterial atherosclerosis in patients with rheumatoid arthritis (RA) is under-investigated.

## Objective

To investigate the prevalence of VC in patients with RA and its relationship with carotid atherosclerosis (CA) and coronary artery calcification (CAC).

## Methods

Study population was consisted of 128 adult patients (65,6% women, age 55 [43; 61] years) with RA according to ACR/EULAR criteria (disease duration 6 [5; 18] month) with moderate/high activity of the disease (DAS28 5.3 [5,0; 6,1]). Arterial hypertension (AH) was found in 82 patients (64%), ischemic heart disease (IHD) – in 18 (14%), dyslipidemia – in 70 (54,7%), smoking – in 26 (20,3%), postmenopausal women – 56 (66,6%), abdominal obesity – in 71 (55,5%), diabetes mellitus type 2 – in 9 (7%), myocardial infarction – in 2 (1,6%), stroke – in 2 (1,6%). Cardiac VC was evaluated by transthoracic echocardiography; CAC scoring was done with 32-row scanner by standard Agatston method, CA was evaluated with duplex ultrasound.

## Results

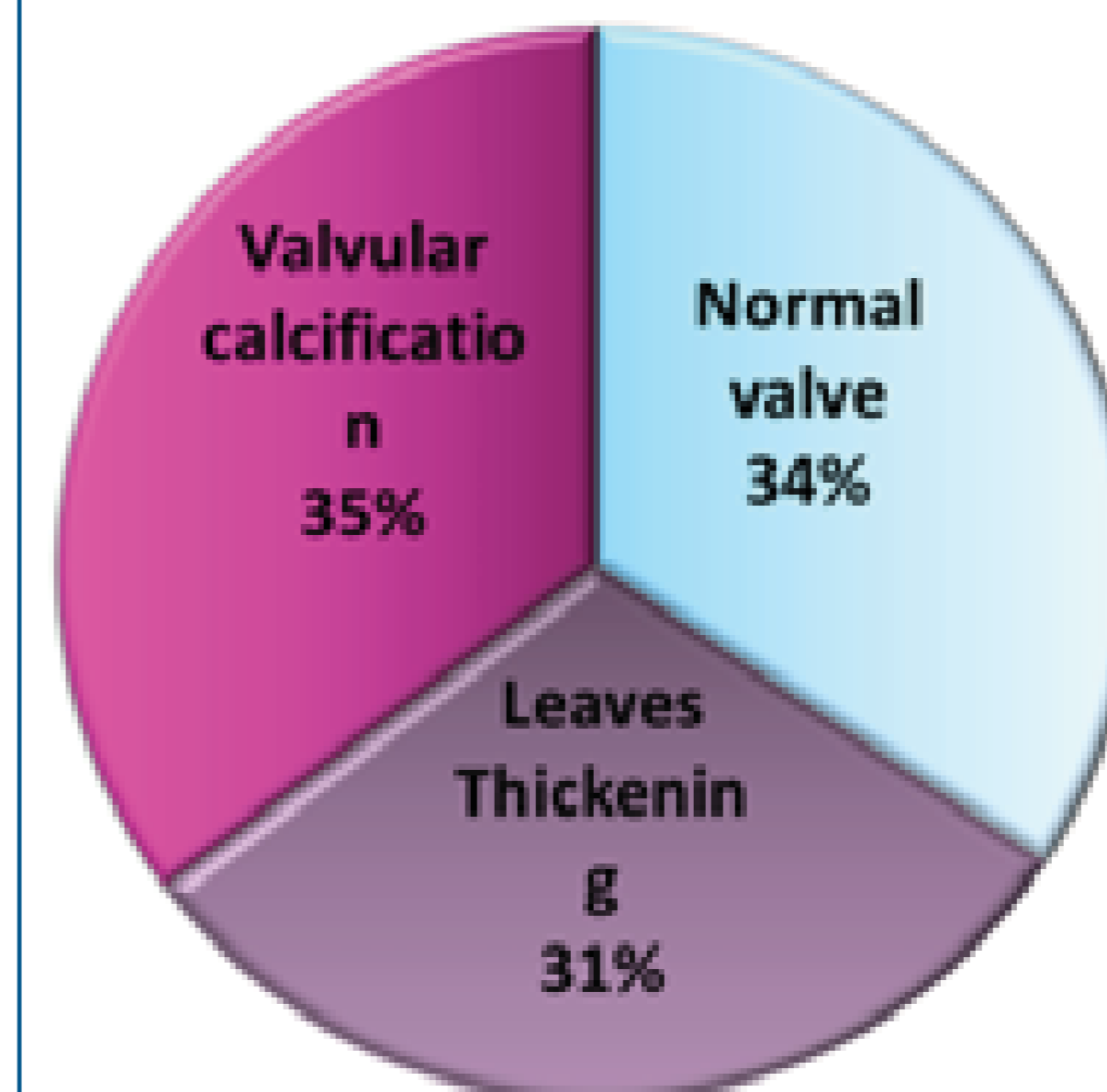
Patients were divided on 3 groups depending on valve condition: normal (n=44; 34,3%), leaves thickening (n=39; 30,5%), VC (n=45; 35,25%): isolated mitral VC – in 5 (11%), isolated aortic VC – in 23 (51%), calcification of both valve – in 17 (38%). Mitral regurgitation (3 degree) – 1 (0,8%), mitral stenosis (mild) – in 1 (0,8%), aortic regurgitation (1 degree) – in 32 (25%), aortic stenosis (mild) – in 1 (0,8%). Age, BMI, SBP and frequency of AH, IHD, CA, CAC significant increased from 1 to 3 group,  $p < 0,05$  (Table 1). There was no significant difference in the sex, lipid levels, Rg-stage, RA duration and level of parameters of RA activity (DAS28, CRP, ESR) between investigated groups.

**Table 1 Differences between RA patients depending on the presence and severity of valve changes.**

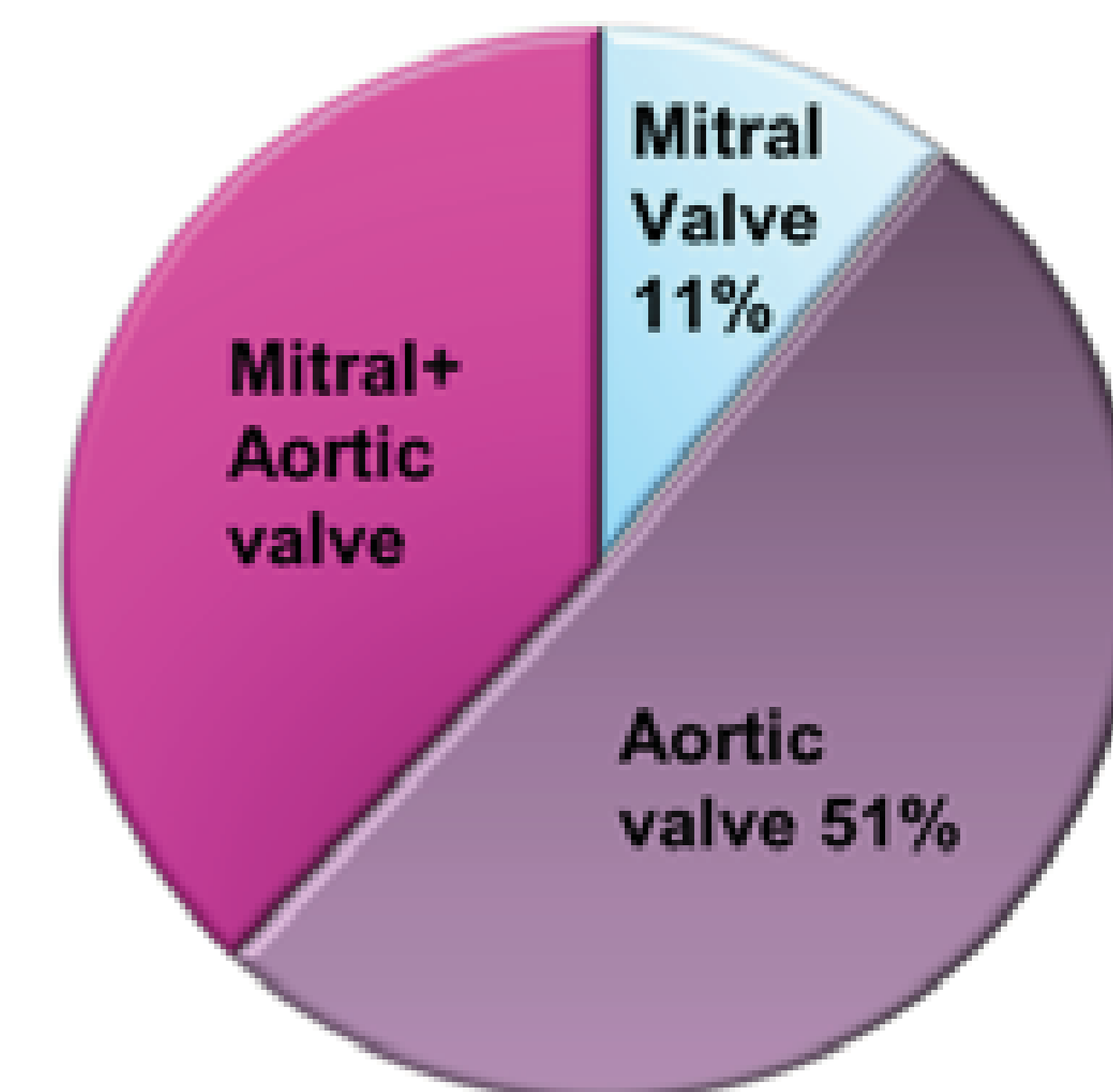
	Normal valve (n=44)	Thickening (n=39)	Calcification (n=45)
Age, years	39.5 [29;51]	56.5 [51.5;62]	60 [57;67] *
BMI, kg/m <sup>2</sup>	23.4 [21.4;28.6]	26.3 [23.7;29.3]	27.2 [25;31] *
SBP, mmHg	120 [100;130]	120 [110;134]	130 [120;140] *
AH, n (%)	19 (43.2)	23 (59)	40 (88.9) *
IHD, n (%)	1 (2.3)	6 (15.4)	11 (24.4) *
CA, n (%)	12 (27.3)	30 (77)	39 (86.7) *
CAC, n (%)	8 (18.2)	16 (41)	32 (71.1) *

Data are presented in median values and IR (unless otherwise noted),  
\* Difference for trend ( $p < 0.05$ )

## Valve Condition



## Localization of valvular calcification



## Conclusion

Among RA patients, more than half have a modified valve structure and in 1/3 of them VC. The presence of VC is correlated with traditional cardiovascular risk factors, but not with lipid levels, activity and severity of RA. The probability of CA and CAC presence is significantly increased when there is VC.