

Rheumatic Heart Valve Disease in Adults at Cardiology Department B Brazzaville University Hospital

Kimbally-Kaky EG^{1,2*}, Mongo Ngamami SF^{1,2}, Gankama TN^{2,3}, Makani JK³, Ngolo-Letomo K¹, Taty RJ³, Kouala Landa CM^{1,2}, Bakekolo RP^{1,2}, Baragou S^{4,5} and Ellenga-Mbolla BF^{1,2}

¹Service de cardiologie B, Centre Hospitalier Universitaire de Brazzaville, Brazzaville, Congo.

²Faculté des Sciences de la Santé, Université Marien Ngouabi, Brazzaville, Congo.

³Service de cardiologie A, Centre Hospitalier Universitaire de Brazzaville, Brazzaville, Congo.

⁴Service de Cardiologie, Hôpital Universitaire Sylvanus Olympio, Lomé, Togo.

⁵Faculté des Sciences de la Santé de Lomé, Togo.

Correspondence

Kimballly-kaky EG, Cardiology Department B, University Hospital Center of Brazzaville, Republic of the Congo.

Received Date: 01 June 2026

Revised Date: 29 June 2026

Accepted Date: 12 July 2026

Publication Date: 25 July 2026

Copyright

© 2026 CME Online Library. This is an open- access article distributed under the terms of the Creative Commons Attribution 4.0 International license.



Int J Cardiol Res Rev. 2026; Vol 3, Issue 1

Open Access

Abstract

Introduction: Rheumatic heart disease (RHD) is a major public health problem in developing countries, particularly in Africa. The lack of recent data on adults in the Congo justifies this study, the aim of which was to investigate rheumatic valvular heart disease in Cardiology Ward B at Brazzaville University Hospital.

Patients and Methods: A retrospective, descriptive study was conducted using the medical records of patients admitted between 1 January 2022 and 31 December 2025. The study included patients aged 18 years or older with rheumatic valvular heart disease confirmed by echocardiography.

Results: Of 2,065 hospitalised patients, 62 had rheumatic valvular heart disease confirmed by echocardiography, representing a prevalence of 3 per cent. There were 44 women (70.9 per cent). The sex ratio was 0.41 and the mean age was 29.5 ± 7.5 years (range: 18 to 50 years). Thirteen patients (20.9%) were under 25 years of age. Those not in education accounted for 17.7 per cent, whilst the unemployed and craft workers accounted for 38.7 per cent and 21 per cent respectively. A history of recurrent sore throats and polyarthralgia was found in half of the patients. The condition was monovalvular (100%). The type of lesion was regurgitation in 44 cases (70.9%), involving the mitral valve in 59.7% of cases and the aortic valve in 11.3% of cases. Other lesions affecting the mitral valve included: stenosis ($n = 10$, or 16.1%), and stenosis combined with regurgitation ($n = 8$, or 12.9%). The complications observed were heart failure (93.5 per cent) and arrhythmias (20.9 per cent). Treatment was primarily medical. Six patients (9.6 per cent) died.

Conclusion: in our setting, rheumatic valvular heart disease is most often diagnosed at the stage of heart failure or arrhythmia, due to delayed presentation. As surgery is not available, prevention remains essential, involving the treatment of streptococcal sore throats and prophylaxis against acute rheumatic fever. This requires the involvement of both the general public and public authorities.

Keywords

Rheumatic valvular heart disease, Adults, Cardiology, Brazzaville.

INTRODUCTION

Rheumatic heart disease in general, and valvular heart disease in particular, represent a significant public health problem. In developed countries, degenerative heart disease is on the rise, affecting mainly the elderly, in contrast to rheumatic heart disease (RHD), for which both prevalence and mortality are falling [1-4].

In developing countries and those with low socio-economic status, the situation is different. Indeed, the prevalence of RD was estimated at 15.6 million

people worldwide, affecting mainly low-income populations and causing more than 233,000 deaths per year [1-4]. In sub-Saharan Africa, efforts to prevent RA remain a significant challenge, as evidenced by an estimated prevalence of 2.7 per thousand in schools in Kenya [3]. In the Congo [5], this prevalence was 3.6 per thousand among school children from lower social classes, and 3 per thousand among those from higher socio-economic backgrounds. In adult cardiology, 17 cases of progressive CR have been reported in Dakar [6]. In Togo, in a 2010 study of valvular heart

Citation: Kimballly-kaky EG, Mongo Ngamami SF, Gankama TN, Makani JK, Ngolo-Letomo K, et al. Rheumatic Heart Valve Disease in Adults at Cardiology Department B Brazzaville University Hospital. Int J Cardiol Res Rev. 2026;3(1):1-4. DOI: 10.52106/3066-3431.1018.

disease in adults in cardiology, the rheumatic form accounted for 21.63 per cent [7], whilst in Mali in 2018 [8], 6.2 per cent of admissions were due to rheumatic valvular heart disease. The lack of recent data on adults in the Congo justifies this study, the aim of which was to investigate cases of rheumatic valvular heart disease admitted to Cardiology Ward B at the Brazzaville University Hospital (CHU).

PATIENTS AND METHODS

This was a retrospective, descriptive study conducted in Cardiology Unit B at Brazzaville University Hospital, based on the medical records of patients admitted between 1 January 2022 and 31 December 2025 (4 years).

-The study included records of patients of both sexes aged 18 years or over, all of whom had undergone examination and had valvular heart disease confirmed by echocardiography. The diagnoses were based on the criteria of the World Heart Federation and the WHO [9,10]. Readmissions of the same patient were counted only once.

-Records that did not include an echocardiogram were excluded.

-The parameters analysed were: sociodemographic (gender, age, occupation, place of residence), clinical (medical history, duration of valvular heart disease, time to consultation, weight, height, blood pressure, heart rate, temperature, auscultation) and paraclinical (chest X-ray, electrocardiogram, Doppler echocardiogram).

Operational definitions

-Rheumatic valvular heart disease was defined as chronic damage to the heart valves (mitral or aortic) resulting from post-infectious inflammatory lesions following an episode of acute rheumatic fever or untreated streptococcal tonsillitis. These lesions may take the form of stenosis (narrowing) or, more commonly, regurgitation (leakage). For the echocardiographic diagnosis, the new criteria allowing for greater standardisation were used [9,10].

Thus, for the mitral valve, only the thickness of the main valve was considered, and the measurement was taken during diastole at the point of maximum excursion, selecting the thickest part. A rheumatic aetiology was considered if the thickness exceeded 3 mm, and the valve cords had been separated. A 'bent knee' appearance of the large mitral valve was also suggestive, with mitral thickening associated with commissural fusion or chordal retraction.

For the aortic valve, a rheumatic aetiology was considered in the presence of irregular or focal thickening, coaptation defect, restricted valve movement or valve prolapse.

- Left ventricular (LV) dilatation was diagnosed on the basis of a telediastolic diameter greater than 55 mm.

- Left atrial (LA) dilatation was diagnosed on the basis of an area greater than 20 cm², or an anteroposterior diameter greater than 40 mm.

- Right ventricular (RV) dilatation was defined as a basal diameter at the tricuspid annulus greater than 42 mm, and a mid-ventricular diameter greater than 33 mm.

- The inferior vena cava was considered dilated if its diameter, as measured by echocardiography in the subcostal view, was greater than 21 mm.

- The left ventricular ejection fraction (LVEF) was defined as the

telediastolic volume of blood ejected from the left ventricle (LV) into the aorta during systole, calculated using the Simpson four-chamber method, and expressed as a percentage. The LVEF is: normal between 50–70 per cent (sometimes higher); moderately reduced between 40–49 per cent; and severely reduced below 40 per cent.

- Pulmonary arterial systolic pressure (PAPs) was defined as the pressure in the pulmonary arteries at the peak of the heart's contraction (systole), normally around 25 mmHg. A value above 25 mmHg at rest is considered high and indicates pulmonary arterial hypertension (PAH).

- To assess the severity of valvular heart disease, the two parameters used were: the regurgitant orifice area and the regurgitant volume.

- Mitral regurgitation (MR) was classified as: 1 / severe if the regurgitant orifice area (ROA) was 40 mm² or greater and the regurgitant volume was 60 ml or greater 2 / moderate if the ROA was between 30 and 39 mm² and the regurgitant volume was between 45 and 59 ml.

- Aortic regurgitation (AR) was classified as: 1 / severe if the regurgitant orifice area (ROA) was 30 mm² or greater and the regurgitant volume was 60 ml or greater 2 / significant if the ROA was between 20 and 29 mm² and the regurgitant volume was between 45 and 59 ml.

- Surgery was indicated in the presence of haemodynamic or rhythm-related complications.

Statistical analysis

The data were recorded on a pre-designed questionnaire and then analysed using EpiInfo Version 7 software. Quantitative variables were expressed as mean $\pm$ standard deviation, and qualitative variables as frequencies and percentages. The study was approved by the department; informed consent was not required given the retrospective nature of the study. However, the data were processed anonymously by assigning numbers in place of surnames, first names and addresses.

RESULTS

Prevalence, epidemiological, clinical and paraclinical aspects

A total of 2,065 patients were admitted to hospital during the study period, of whom 79 were admitted for rheumatic valvular heart disease. Records that did not include an echocardiogram were excluded (n = 17). Consequently, 62 records of patients with a diagnosis of rheumatic valvular heart disease confirmed by echocardiography were included, representing a prevalence of 3 per cent. The patients comprised 18 men (29 per cent) and 44 women (70.9 per cent). The sex ratio was 0.41. The mean age was 29.5 $\pm$ 7.5 years, ranging from 18 to 50 years. Thirteen patients (20.9%) were under 25 years of age (Table 1). All patients resided in Brazzaville, in an urban area.

- A history of recurrent sore throats and polyarthralgia was found in 31 cases (50%). A family history of CR was noted in three patients (4.8%).

-With regard to socio-occupational categories (Table 1), the unemployed and self-employed made up the majority: 24 patients (38.7 per cent) and 13 patients (20.9 per cent) respectively.

- The reasons for consultation were: dyspnoea in 60 cases (96.7 per cent), and palpitations in 10 cases (16.1 per cent). Six patients (9.7 per cent) had sought consultation for chest pain. The time taken to seek

consultation was more than 7 days in 60 cases (96.7 per cent). Only one patient had sought consultation within 7 days.

- The mean heart rate was 103 ± 14.1 beats per minute (range: 57 to 140 beats). Other clinical presentations noted were: heart failure in 58 cases (93.5 per cent), and cardiac arrhythmia in 13 cases (20.9 per cent).

- On the electrocardiogram, the rhythm was sinus in 49 cases (79%). Atrial fibrillation was noted in 13 cases (20.9%). Other findings included: left atrial hypertrophy (48 cases, or 77.4%), and left ventricular hypertrophy (18 cases, or 29%).

- On chest X-ray, cardiomegaly was observed in 59 cases (95.1%).

- Laboratory results were normal

- On echocardiography, the type of lesion was valvular regurgitation in 44 cases (70.9 per cent), valvular stenosis in 10 cases (16.1 per cent), and valvular regurgitation combined with valvular stenosis in 8 cases (12.9 per cent). The details of the lesions confirmed by Doppler echocardiography [9,10] are shown in Table 2, revealing mitral regurgitation (MR) in more than half of the cases (59.7%). Valvular regurgitation was severe in 44 cases (70.96%).

The other echocardiographic parameters were:

- Cardiac chamber dilatation in all cases (100%)
- Elevated mean pulmonary artery pressure (mPAP) in 24 cases (38.7%) with a mean of 43.7 ± 19.4 mmHg (range: 24.3–63.1 mmHg)
- A mean LV end-diastolic diameter of 53.5 ± 9.4 mm (range: 44.1–62.9 mm) average OG diameter of 42.4 ± 14.2 mm (range: 28.2–56.6 mm).

LVEF was normal in 10 patients with mitral stenosis (16.1%). The mean LVEF was $51.7 \pm 13.1\%$ (range: 38.6–64.8%).

Table 1 : Socio-demographic data.

		General population n (%)
Gender	Male	18 (29%)
	Female	44 (70,9%)
Age groups (years)	≤ 25	13 (20,9%)
	25–34	31 (50%)
	35–44	17 (27,4%)
	≥ 45	1 (1,6%)
Level of education	None	11 (17,7%)
	Secondary	44 (70,9%)
	Higher	7 (11,3%)
Socio-occupational categories	Unemployed	24 (38,7%)
	Craftspeople	13 (21%)
	Skilled tradespeople	11 (17,7%)
	Manual workers	11 (17,7%)
	Clerical staff	3 (4,8%)

Table 2: Details of lesions.

	Number of staff	Percentage (%)
Mitral regurgitation	37	59,7
Mitral stenosis	10	16,1
Mitral regurgitation and stenosis	8	12,9
Aortic regurgitation	7	11,3
Total	62	100,0

The type of lesion was : a leak in 44 cases (70.9 per cent) ; a stenosis in 10 cases (16.1 per cent) ; and a leak combined with a stenosis in 8 cases (12.9 per cent).

Therapeutic and clinical course

From a therapeutic perspective, management was primarily medical in all cases. Although surgery was indicated for all patients, it was not possible due to the lack of surgical facilities at our centre and the high cost of medical evacuation abroad. Six patients (9.6%) died. The causes of death were: severe respiratory distress (3 cases); cardiogenic shock (3 cases).

DISCUSSION

Critique of the method

This study has certain limitations. It was a retrospective study based on the records of hospitalised patients. Consequently, valvular heart disease was recorded only in patients who were all symptomatic, thereby excluding cases that might have been detected through routine screening. Furthermore, records without an echocardiogram were excluded. This explains the small sample size and, consequently, the prevalence of 3 per cent that we observed. Nevertheless, this is a preliminary study focusing on rheumatic valvular heart disease in adults in the Cardiology B Department of Brazzaville University Hospital.

Epidemiological, clinical and paraclinical aspects

The study population was young, with a mean age of 29.5 years, thus supporting the assertion that CR predominantly affects young people in developing countries [2,3,8,11-13]. Similarly, in the VALVAFRIC study conducted across 12 cardiology centres in West and Central Africa [14], the mean age of patients was 29.3 years, which is close to our findings. However, for Dioum et al. in Dakar [15], the mean age of their patients was significantly lower, at 20.57 years. For the Malian authors [16], those under 30 years of age accounted for 40.4 per cent of the study population, whilst the mean age was 33.3 years in Lomé, Togo [17]. The composition of the sample varies across studies, with a predominance of women, as we observed (70.9 per cent women). The same finding has been reported in several African series [8,14,16-21,17].

Dyspnoea, the main clinical symptom in our study, was also the predominant finding in Bamako, Madagascar, Lomé and Ibadan in Nigeria [8,11,17,22]. It is generally associated with heart failure. In our study, the most common lesion was valvular regurgitation, with mitral regurgitation being the most frequent, a finding also noted in several series in Africa [8,11,12,14,16-18,22]. Complications in our sample were largely arrhythmias such as atrial fibrillation (20.5 per cent) and heart failure (93.2 per cent). The latter may reflect delayed presentation, as patients were seen at an advanced stage of their disease. Indeed, the delay in seeking medical attention that we observed, along with the associated low socio-economic status and low educational attainment of the patients, is consistently reported [6-8,11,12,14,16,17,21,23]. Unlike the studies by Bâ et al. [16] and Zühlke et al. [19], we found no cases of thromboembolic events or haemorrhagic events in our study. The small sample size is a plausible explanation for this.

Therapeutic and prognostic aspects

The management of our patients was primarily medical for several reasons: 1) the limitations of our hospital's technical facilities, where cardiac surgery is not available; 2) the cost of cardiac surgery, which remains too high even in an African centre. Certain issues relating to

medical management – in this case, poor adherence to treatment, as noted by Longenecker et al. [23] – are largely due to financial difficulties, as health cover in most developing countries is still linked to employment. In our small series, we recorded six deaths (9.5 per cent). All our patients who died had been admitted at the stage of severe haemodynamic complications. It is worth emphasising that, alongside surgery for rheumatic valvular heart disease—which is costly in our context—prevention is fundamental [24]. This involves the vigorous treatment of streptococcal sore throats and prophylaxis against acute rheumatic fever in patients with known valvular heart disease. However, one of the many challenges facing public authorities is educating the population. This would then lead people to abandon their beliefs in traditional medicine and the associated practices. For example, Sissoko et al., working in rural areas of Côte d'Ivoire [25], recently highlighted the influence of traditional beliefs on the management of rheumatic heart disease.

CONCLUSION

This study shows that hospitalised patients with rheumatic valvular heart disease are young, from a low socio-economic background, are predominantly seen at the stage where complications have already developed, and do not have access to surgery. Consequently, resolving these issues requires public authorities to: improve people's standard of living, provide health education, and facilitate access to healthcare. Improving the technical infrastructure for the monitoring and management of patients is another challenge.

REFERENCES

- Carapetis JR, Mc Donald M, Wilson NJ. Acute Rheumatic fever. *Lancet*. 2005; 366: 155-168.
- Carapetis JR, Steer AC, Mulholland EK, Weber M. The global burden of group A streptococcal diseases. *Lancet infect Dis*. 2005; 5: 685-694.
- GBD 2013 Mortality and Causes of Death Collaborators. Global, Regional, and national age-sex specific all-cause and cause-specific mortality for 240 causes of death, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet*. 2015; 385: 117-171.
- Tibazarwa KB, Volmink JA, Mayosi BM. Incidence of acute rheumatic fever in the world : a systematic review of population-based studies. *Heart*. 2008; 94: 1534-1540.
- Kimball-Kaky G, Gombet T, Voumbo Y, Ikama MS, Ellenga-Mbola B, et al. Rheumatic heart disease in schoolchildren in Brazzaville. *Med Trop*. 2008; 68: 603-605.
- Diao M, Kane Ad, Doumbia AS, Leye MMCBO, Mbaye A, et al. Les cardiopathies rhumatismales évolutives. About 17 colleges at the CHU of Dakar. *Med Trop*. 2005; 65: 339-342.
- Balaka A, Tchamdja T, Djibril MA, Djagadou KA, Tchandana M, et al. Valvular heart disease in hospitals in Lomé (Togo). *Pan Afr Med J*. 2015; 20: 168.
- Oumar BH, Kéita MA, Thiam DC, Souleimane MS, Noumou S, et al. Prevalence, Pattern and Evolution of Rheumatic Heart Disease. About 120 cases at Mother-Children University Hospital Luxembourg (MC UHL), Bamako (Mali). *World J Cardiovasc Dis*. 2018; 8: 319-327.
- Reményi B, Wilson N, Steer A, Ferreira B, Kado J, et al. World Heart Federation Criteria for echocardiographic diagnosis of rheumatic heart disease-an evidence-based guideline. *Nat Rev Cardiol*. 2012; 9: 297-309.
- Rheumatic fever and rheumatic heart disease: report of a WHO expert consultation, Geneva: World Health Organization. Technical report series / World Health Organization. 2004; 122.
- Lahardy R, Derason G, Andrianjafimanana CH, Rabetalianina D. Valvulopathies rhumatismales et échographies cardiaques. *Méd d'Afr Noire*. 2000; 47: 256-258.
- Rizoi SFH, Khan MA, Kundi A, Marsh DR, Samad A, et al. Current Status of rheumatic heart diseases in rural Pakistan. *Heart*. 2004; 90: 394-399.
- Marijon E, Ou P, Celer majer DS, Ferreira B, Mocumbi AO, et al. Prevalence of rheumatic heart disease detected by echocardiographic screening. *N Engl J Med*. 2007; 357: 470-476.
- Kingué S, Ba SA, Balde D, Diarra MB, Anzouan-Kacou J-B, et al. The VALVAFRIC Study : Aregistry of rheumatic heart disease in western and central Africa. *Arch Cardiovasc Dis*. 2016; 109: 321-329.
- Dioum M, Diagne PH, Assani Z, Ba PO, Ngaide AA, et al. Rheumatic Heart Diseases : Epidemiological, Diagnostic and Therapeutic Aspects at The Cardiology Clinic Fann Hospital in Dakar. *Cardiol Vasc Res*. 2022; 6: 1-3.
- Bâ HO, Sangaré I, Camara Y, Coulibaly S, Sidibé N, et al. Valvulopathies rhumatismales de l'adulte au CHU Gabriel Touré : à propos de 314 cas. *Health Sci Dis*. 2022; 23: 34-37.
- Yayehd K, Kouleke D, Tchamdja T, Tcherou T, Pessinaba S, et al. Valvulopathies rhumatismales à Lomé: aspects épidémiologiques et prise en charge. *J Rech Sci Univ Lomé*. 2012; 14: 51-58.
- Kramoh KE, N'Goran YNK, Aké-Traboulsi E, Konin KC, Boka BC, et al. Carditis rhumatismales in Côte d'Ivoire: evolution of hospital prevalence during the decade 2000-2009. *Ann Cardiol Angéiol*. 2013; 62: 34-37.
- Zuhlke L, Engel ME, Karthikeyan G, Rangarajan S, Mackie P, et al. Characteristics complications, and gaps in evidence-based interventions in rheumatic heart disease : the Global Rheumatic Heart Disease Registry (the REMEDY study). *Eur Heart J*. 2015; 36: 1115-1122.
- Sorry BI, Baldé EY, Koivogui K. Valvulopathies rhumatismales au Service de l'Hôpital national Ignace Deen. *Am J and Cardiovasc Dis*. 2019; 2: 01-06.
- Berhanu H, Mossie A, Morankar SN, Gemechu TD, Tegene E. Echocardiographic Parameters and complication Profiles Among Adult Patients with Rheumatic Heart Disease at Jimma Medical Center. *Vascular Health and Risk Management*. 2024; 20: 157-166.
- Ogah OS, Adeyanju AT, Lyawe EP, Okwunze KF, Okeke M, et al. Baseline Clinical Characteristics of Contemporary Adult Chronic Rheumatic Heart Disease in Ibadan, Nigeria. *Ann Ib Postgrad Med*. 2024; 22: 9-17.
- Longenecker CT, Morris SR, Aliku TO, Beaton A, Costa MA, et al. Rheumatic Heart Disease Treatment Cascade in Uganda. *Circ Cardiovasc Qual outcomes*. 2017; 10: e004037.
- Gaye B, Jobe M, Marijon E, ERADICATE Consortium. Towards the elimination of rheumatic heart disease in Africa and globally : the ERADICATE Consortium. *Eur Heart J*. 2026; 47: 786-790.
- Sissoko GK, Paganotti L, Scalzitti DA. Perspectives of Health Care Providers in Rural Côte d'Ivoire on the influence of Traditional Beliefs on the Management of Rheumatic Heart Disease : A Qualitative Study. *J Transcult Nurs*. 2025; 36: 603-614.