

Rheumatic Heart Diseases: Epidemiological, Diagnostic and Therapeutic Aspects at The Cardiology Clinic Fann Hospital in Dakar

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ABSTRACT

Introduction: Rheumatic heart disease are a serious complication of acute articular rheumatism. They remain frequent in our underdeveloped countries and in Senegal in particular. Late diagnosis and lack of early and appropriate management put people at risk of serious and sometimes fatal complications. The purpose of our study was to report the epidemic profile and outcomes of rheumatic valve disease management.

Methodology: We conducted a retrospective and descriptive study including patients hospitalized from January 1st, 2017 to June 31th, 2019 for rheumatic valve disease in cardiac surgery or medical cardiology department. The various parameters studied were epidemiological, diagnostic and prognostic data. Data analysis was done by the Statistical package for Social Sciences (SPSS) version 18.

Results: We collected 102 cases. The average age was 20.57. The Male/Female sex ratio was 1.12. Fifty-six patients were hospitalized for scheduled surgery, 43 for decompensated heart failure and 03 for infectious endocarditis. Mitral valve regurgitation was the most common valve disease (19.61%). Poly-valvular involvement was dominated by mitral disease and aortic valve regurgitation (32.35%). Seventy-five patients, or 73.5%, had received surgical treatment, including valve replacement in 67.15% of cases and valvuloplasties accounted for 37.83%. Percutaneous mitral commissurotomy was performed in 03 patients. The medical treatment was for heart failure and infectious endocarditis. The trend was favourable in 86.2% of cases. Twenty-eight patients were lost sight. Medium-term mortality was 13.7% or 14 patients.

Conclusion: Rheumatic heart diseases remain common in our regions, they must be detected early for better management. The treatment is typically surgical but is often lacking hence the importance of the prevention of rheumatic arthritis.

Keywords

Rheumatic heart disease, Surgery, Senegal.

Introduction

Rheumatic valvular heart diseases are lesions of the heart valves caused by one or more episodes of rheumatic fever. According to the World Health Organization, they affect about 30 million people around the world today. In 2015, the disease was estimated

to have caused 305,000 deaths and 11.5 million disability-adjusted life years. It usually occurs in childhood and can lead to lifelong disability or death.

Once common in developed countries, acute rheumatic arthritis and rheumatic heart disease have become very rare due to improved living and health conditions [1].

On the other hand, in Africa, rheumatic heart disease remains common in school populations and is a serious public health problem, as evidenced by the work carried out in children aged 05 to 16, especially in Ethiopia, Mali, South Africa and Zambia with respective prevalences of 4.6 ; 3,4 ; 10 and 12 per 1000 [2]. The Valvafric study, conducted in 2008, found an hospital prevalence of 12.3% [3].

In Senegal, the hospital prevalence of rheumatic heart disease was estimated at 30.5% in a study conducted by Diaio et al. in 2002 [4]. Ngaide's study found a prevalence of 4.95 %o in Koranic schools [5].

In our underdeveloped countries, diagnosis is often late and surgery is not always available exposing to a risk of serious and sometimes fatal complications. However, the premature mortality from this disease can be prevented by an effective early intervention [1].

The objective of our study was to report the epidemic profile and outcomes of rheumatic valve disease management.

Patients and Method

We conducted a retrospective and descriptive study including patients hospitalized from January 1st, 2017 to June 31th, 2019 for rheumatic valve disease in cardiac surgery or medical cardiology departments. Were included, all patients who had an echocardiography confirming the diagnosis of rheumatic heart disease and who were hospitalized in one of the wards during the study period.

The various parameters studied were: marital status, socio-demographic parameters, medical and surgical history, clinical and paraclinical aspects. The type of management (medical, interventional or surgical) was also studied as well as the short and medium term evolution.

The sources of data were hospital records, consultation sheets, and operating records. Data entry was performed on Sphinx version 5.1.0.2 and data analysis by Statistical package for Social Sciences (SPSS) version 18.

Results

We collected 102 cases. The average age was 20.57 years with extremes of 6 to 64 years. More than half of the patients (52.5%) were under 16 years of age. Our population consisted of 54 men (52.9%) and 48 women (47.1%). The Male/Female sex ratio was 1.12. The majority of our patients (42.1%) were from rural areas. The socio-economic level was considered low in 79 patients or 82.3%. Only 31 (30.3%) of our patients were in school; 17 of them (54.8%) had to stop their studies because of the disease. Forty-six (46) patients, or 49.5%, had a history of hospitalization for decompensated heart failure. Other medical histories were marked by recurrent angina (40 patients) and polyarthralgia (35 patients). Socio-demographic characteristics are summarized in Table 1.

Table 1: Patient Socio-demographic Characteristics.

Characteristics	Number	Percentage
Number	102	
Average age	20,5	
Sex-ratio M/F	1,1	
Place of residence		42,6
Rural environment	43	42,1
Urban	39	38,2
Low SES	79	82,3
Schooling	31	30,4
School loss	17	54,8
Angina	40	40,8
Polyarthralgies	35	34,3

SES: Socio-economic status: M/F: Male/Female.

Fifty-six patients were hospitalized for scheduled surgery, 43 for decompensated heart failure and 03 for infectious endocarditis. Antistreptolysin O (ASLO) serology was positive in half of patients with an assay (n =52). Atrial fibrillation was the most common rhythm disorder (13 patients). Mitral valve regurgitation was the most common valve disease at 19.61% (Figure 1) followed by mitral stenosis alone at 9.8% and mitral disease at 9.8%. Aortic valve regurgitation was present in 5.88% and aortic disease 0.98%. Polyvalvular disease accounted for 53.92%, with a predominance of mitral disease association and aortic valve regurgitation (32.35%). Tricuspid valve involvement was present in 29.41%. A quarter of patients had left ventricular systolic dysfunction. Mean pulmonary artery systolic pressure (PASP) was 57.27 mm Hg with extremes of 5-147 mm Hg. Pulmonary hypertension was found in 62 patients or 66.7%.

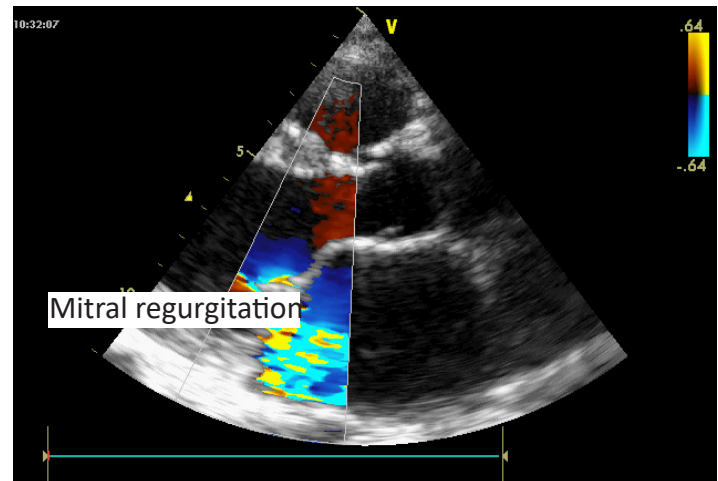


Figure 1: Long axis parasternal transthoracic echocardiography with eccentric mitral regurgitation (blue arrow).

Seventy-five patients, or 73.5%, had received surgical treatment, including valve replacement (Figure 2A) in 67.15% of cases (mitral valve replacement: 52.3%; aortic valve replacement: 82%), while valvuloplasties accounted for 37.83% (mitral plasty: 44.6%; aortic plasty: 14.3%; tricuspid plasty: 54.6%). Mechanical prostheses were used in 65.3% versus 4% bioprosthesis.

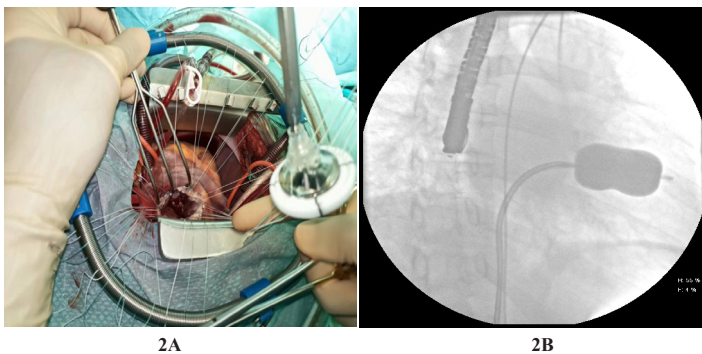


Figure 2A: Mitral valve replacement performed by local team
Figure 2B: Per interventional fluoroscopy showing the INOUE balloon at the time of mitral valve inflation. Procedure performed by local team.

Percutaneous mitral commissurotomy (Figure 2B) was performed in 03 patients. The medical treatment was for heart failure and infectious endocarditis.

The trend was favourable in 86.2% of cases. The number of deaths was 14, including 11 deaths in operated patients, 2 in medically treated patients and one at a distance from a commissurotomy. Twenty-eight patients were lost sight.

Discussion

Our results showed a predominance of rheumatic valve disease in young subjects under the age of 20. This was found in the studies of Zongo in Mali and Diao et al. in Senegal with an average age of 18 [6] and 15 [3] respectively. This concludes that children and adolescents are the ones who pay the heavy price for rheumatic disease due to their vulnerability to infections and their ability to contract post-streptococcal angina.

Although the literature [3,6,7] indicates a female predominance of rheumatic valve diseases, our results show that they affect both men and women. Sex is not an immunity argument to this disease. Among the clinical manifestations of rheumatic valve disease, heart failure remains in the foreground with dyspnea as the predominant symptom. The different African series had reached the same conclusion [3,4,6].

As described in the studies of Sidibé et al. [8] and Kramoh et al. [9], our study confirmed that the mitral valve is the one most often affected during rheumatic heart diseases, in both mono and polyvalvular conditions. Surgical management was effective in 75 patients, a rate of 73.5%. In comparison with the Maghreb series [10,11], this rate was below. Surgical treatment is the main therapeutic means of valvular diseases. This rate is justified by the fact that many patients were hospitalized as part of scheduled surgery and also some children were operated on as part of humanitarian missions.

However, in developing countries, surgery remains a luxury and is not accessible to all, due to the scarcity of centers, its often-high cost, the poverty in our regions but also the lack of adequate resources in our hospital structures.

Mechanical valve replacement was more used 65.3% versus 4% bioprosthesis. This is explained by its robustness despite the use of a lifetime anticoagulant treatment.

The number of deaths was 14 patients. Hospital mortality of patients undergoing surgery was 5.3%. Higher rates were found in the studies of S. Toure et al. (9%) [7] and Chikhi (11%) [12]. In the medium-term follow-up, we noted 10 deaths. Mortality during follow-up is usually due to therapeutic breaks due to lack of financial resources and lack of surgery.

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