Scientific Research Publishing

World Journal of Cardiovascular Diseases, 2024, 14, 581-587
https://www.scirp.org/journal/wjcd
ISSN Online: 2164-5337
ISSN Print: 2164-5329

Pericarditis in Cardiology at a Regional Hospital

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How to cite this paper: Souleymane, C., Djénébou, T., Massama, K., Oumar, B.A.H., Aissata, G., Koumaré, Y.R., Samba, S., Mariam, S., Alpha, S., Aniéssa, K., Kéita, M.Y., Mamadou, D. and Ichaka, M. (2024) Pericarditis in Cardiology at a Regional Hospital. *World Journal of Cardiovascular Diseases*, **14**, 581-587.
https://doi.org/10.4236/wjcd.2024.149050

Received: June 19, 2024
Accepted: September 21, 2024
Published: September 24, 2024

Abstract

Introduction: Pericarditis is an inflammation of the pericardium with or without pericardial fluid effusion. Its prevalence is difficult to determine given the many forms that are not symptomatic. In Africa, its prevalence was 6.3% in Gabon in 2020 and 7.2% in Mali in 2022. In Europe, an Italian study estimates the incidence of acute pericarditis at 27.7 cases per 100,000 people per year. In another study conducted in Finland over a period of 9 years, the incidence of pericarditis requiring hospitalisation was 3.32 cases per 100,000 people per year. The aim of our study was to describe the clinical and paraclinical characteristics of pericarditis observed in the cardiology department of the regional hospital in Mali. **Methodology:** This was a single centre cross-sectional study from 30 January 2018 to 30 June 2020 in the cardiology department of the Ségou regional hospital. All consenting patients, regardless of age or sex hospitalised in the department for pericarditis confirmed on cardiac ultrasound were included. Data were collected using an individual patient follow-up form recording sociodemographic, clinical, biological, electrocardiographic and echocardiographic data, as well as the course of the disease. **Results:** Out of 879 patients hospitalized, the hospital frequency was 7.28%. Females predominated, with a sex ratio of 0.42. More than half the patients were aged 45 or younger (59.4%). The mean age of patients was 41.8 ± 18.1 years. Cardiovascular risk factors were dominated by hypertension and smoking (46.9% and 12.5% respectively). The reasons for consultation were dyspnoea (84.3%), chest pain (54.7%), cough (71.9%) and fever (34.4%). Physical signs included muffled heart sounds (76.6%), tachycardia (70.3%), pericardial friction (17.2%) and signs of peripheral stasis in 53.1% of cases. We observed elevated C-

reactive protein (CRP) in 57.8% of cases, hypercreatininaemia in 37.5% and positive HIV serology in 3.1%. The major radiographic signs were cardiomegaly in 82.8% and pleural effusion in 37.5%. On electrocardiogram (ECG), 51.6% of patients had a repolarisation disorder and sinus tachycardia; 34.4% had QRS microvoltage. Echocardiography revealed tamponade in 1.6% and pericardial effusion in 100%. The effusion was very large in 17.3% of cases. The pericardial fluid was citrine yellow in 18.8%, serosanguineous in 9.4% and haemorrhagic in 7.8%. The aetiology of the pericarditis was idiopathic in 42.1% and secondary to HIV in 3.1%. Transudative fluid was observed in 16.5% of cases. The outcome was generally favourable, with 92.2% of cases cured, but 1.6% with persistent effusion, 3.1% with recurrence, and 3.1% with mortality.

Keywords

Pericarditis, Epidemiology, Clinic, Nianankoro Fomba Hospital, Ségou

1. Introduction

Pericarditis is an inflammation of the pericardium with or without pericardial fluid effusion [1]. Its prevalence is difficult to determine, given the many forms that are only mildly symptomatic [2]. The main pericardial syndromes are pericarditis (acute, subacute, chronic and recurrent), pericardial effusion, cardiac tamponade, constrictive pericarditis and pericardial masses [3].

In Africa, its prevalence was 6.3% in Gabon in 2020 and 7.2% in Mali in 2022 [4] [5]. In Europe, an Italian study estimates the incidence of acute pericarditis at 27.7 cases per 100,000 people per year. In another study conducted in Finland over a period of 9 years, the incidence of pericarditis requiring hospitalisation was 3.32 cases per 100,000 people per year [6] [7]. Pericarditis is therefore a fairly common condition, which poses difficulties in terms of aetiological diagnosis, exposes the patient to the risk of tamponade, and, in the case of certain aetiologies, may lead to constriction, recurrence or chronicity [1] [2]. The most common aetiology in developed countries is idiopathic or presumed viral in 55% to 86% of cases [8].

In developing countries, on the other hand, tuberculosis is frequently the specific aetiology [6]-[9]. The pre-eminence of HIV-AIDS as an aetiology makes the disease a genuine public health problem.

This evolution in the clinical and aetiological profile of pericarditis and the absence of previous epidemioclinical data in the Segou region of Mali explain our interest in the subject. The aim of our study was to describe the clinical and paraclinical characteristics of pericarditis observed in the cardiology department of the Nianankoro FOMBA Hospital in Ségou.

2. Methodology

This was a cross-sectional, descriptive study from 30 January 2018 to 30 June 2020

in the cardiology department at the Ségou regional hospital. All consenting patients, regardless of age or sex, hospitalised in the department for pericarditis confirmed on transthoracic echocardiography were included. The examinations were performed with a Sonoscap P9 echocardiograph. The diagnosis of pericarditis was clinical, with suggestive chest pain, and echographic, with the presence of an empty retrocardiac echocardiographic space seen at several incidences. Data were collected using an individual patient follow-up form recording sociodemographic, clinical, biological, electrocardiographic and echocardiographic data, as well as the course of the disease.

3. Results

During the study period, out of 879 patients hospitalised, 64 were admitted for pericarditis, a frequency of 7.28%. Women predominated, with a sex ratio of 0.42. More than half the patients were aged 45 or under (59.4%). The mean age of patients was 41.8 ± 18.1 years.

Cardiovascular risk factors were dominated by hypertension and smoking, with 46.9% and 12.5% respectively (Table 1). The patients' medical history included pericarditis (1.6%), ischaemic heart disease (9.4%) and tuberculosis (3.1%). The reason for consultation was dyspnoea (84.3%), chest pain (54.7%), cough (71.9%) and fever (34.4%) (Table 1). The onset of pericarditis was acute in 73.4% and insidious in 26.6%. The physical examination revealed muffled heart sounds (76.6%), tachycardia (70.3%), pericardial friction (17.2%), rhythm disturbance (17.2%) and signs of peripheral stasis in 53.1% of cases (Table 1). We observed elevated C-reactive protein (CRP) in 57.8% of cases, hypercreatininaemia in 37.5% and positive HIV serology in 3.1% (Table 2). The frontal chest X-ray showed cardiomegaly in 82.8% and pleural effusion in 37.5%. On electrocardiogram (ECG), 51.6% of patients had a repolarisation disorder and sinus tachycardia; 34.4% had QRS microvoltage (Table 2). Echocardiography revealed tamponade in 1.6% and pericardial effusion in 100%. The effusion was small in 43.8% of cases, medium in 37.4% and large in 17.3% (Table 2). The pericardial fluid was citrine yellow in 18.8%, serosanguineous in 9.4% and haemorrhagic in 7.8%. The aetiology of pericarditis was idiopathic in 42.1% and secondary to HIV in 3.1%. Transudative fluid was observed in 16.5% of patients. The main causes were chronic renal failure in 17.1% and heart failure in 9.4% (Table 1). The outcome was generally favourable, with 92.2% of patients recovering, although 1.6% had persistent effusion, 3.1% recurrence and 3.1% mortality.

Table 1. Socio-demographic and clinical characteristics.

Gender	Number (N = 64)	Percentage
Female	45	70.3
Male	19	29.7
Age groups	**Number (N = 64)**	**Percentage**
13 - 29	19	29.7

Continued

30 - 45	19	29.7
46 - 61	16	25
62 - 78	10	15.6
Cardiovascular risk factors	**Number (N = 64)**	**Percentage**
HTA	30	46.9
Tobacco	8	12.5
Reasons for consultation	**Number (N = 64)**	**Percentage**
Dyspnoea	54	84.3
Cough	46	71.9
Chest pain	35	54.7
Fever	22	34.4
Asthenia	18	28.1
Palpitations	6	9.4
Physical signs	**Number (N = 64)**	**Percentage**
Muting BDCs	49	76.6
Tachycardia	45	70.3
Peripheral signs of CI	34	53.1
Pericardial friction	11	17.2
Heart rhythm disorder	11	17.2
Causes	**Number (N = 64)**	**Percentage**
Etiology not found	35	54.6
IC decompensation	12	18.8
Renal insufficiency	8	12.5
Acute pericarditis linked to MI	3	4.7
Tuberculosis	2	3.1
HIV	2	3.1
Bacterial	1	1.6
Paracardiac mediastinal tumour	1	1.6

Table 2. Paraclinical aspects (ECG, cardiac ultrasound and biology).

ECG abnormalities	Number (N = 64)	Percentage
Repolarisation disorder	33	51.6
Sinus tachycardia	33	51.6
Diffuse QRS microvoltage	22	34.4
AC/FA	11	17.2
PQ segment sub-offset	4	6.3
Electrical alternation	3	4.7

Continued

Echocardiographic abnormalities	Number (N = 64)	Percentage
Pericardial effusion	64	100
Fibrin deposit	9	14.1
Signs of tamponade	1	1.6
Small pericardial effusion	29	45.3
Medium-sized pericardial effusion	24	37.5
Abundant pericardial effusion	11	17.2
Moderately impaired LVEF	25	39.1
Severely impaired LVEF	11	17.2
Elevated CRP	37	57.8
High creatinine levels	4	37.5
Positive HIV serology	2	3.1

4. Discussion

The study encountered a number of difficulties, in particular the failure to carry out certain additional tests required for aetiological research, notably Genexpert and PCR.

During the study period, of the 879 patients hospitalised in the department, 64 cases of pericarditis were recorded, representing a hospital frequency of 7.28%.

This rate is identical to that of DEMBELE who reported 7.2% in a health district in Bamako, Mali in 2022 [5] and close to the 6.3% reported by KINGA in Gabon [4]. It is much higher than those observed by Menta [9] and Gribaa. [2] who found 1.92% and 0.51% respectively.

The sample was 70.3% female, with a sex ratio of 0.42. This result is identical to that reported in the literature [1] [10].

The most common antecedents were tuberculosis (3.1%), chronic renal failure (6.3%) and ischaemic heart disease (9.4%). GRIBAA [2] in 2015 in Tunisia found tuberculosis in 3.1% of cases, radiotherapy or CKD (3.1%), cancer (4.7%), cardiac surgery (4.7%).

The onset of pericarditis was most often acute in 73.4% of cases. The reason for consultation was dyspnoea in 84.3% of cases, followed by chest pain in 54.7%. This result is consistent with that of DEMBELE [7], who found 70.2% dyspnoea followed by 57.0% chest pain. Chest pain was the most frequent reason for consultation in the study by GRIBAA (72.7%) in 2015 [2]; in that by SERME (94.6%) in 1991 [11] and by KINGA in 2020 [4].

Muffled heart sounds were found in 76.6% of cases, which was the most common auscultatory abnormality, a rate close to DEMBÉLÉ's 83.6% [7]. It was followed by tachycardia in 70.3% of cases. These signs are not specific to pericarditis.

Pericardial rubbing was perceived in 17.2% of patients. This result is close to the data of GRIBAA [2] who found 19.5% pericardial rubbing and lower than the

46.1% and 31.2% respectively of DEMBÉLÉ and KINGA [4] [7]. Pericardial rubbing is a pathognomonic sign of pericardial inflammation, but it is inconsistent and its absence does not exclude pericarditis. Peripheral stasis was present in 53.1% of patients, similar to the 42.1% found in GRIBAA [2]. This can be explained by the fact that patients are only seen at an advanced stage of the disease. Chest X-rays were taken in all our patients and 82.8% had radiological cardiomegaly, a rate close to the 91% found in the study carried out by MENTA [9] in 2007. Pleurisy was associated in 37.5% of cases, which reflects the results of GRIBAA [2] who found pleurisy in 36.7% of cases.

The ECG was available in all our patients and showed sinus tachycardia associated with ventricular repolarisation disorders in 51.6% each, compared with 70% tachycardia and 56.2% repolarisation disorder in KINGA [4]. Diffuse microvoltage was observed in 34.4%. Dembele [7] described repolarisation disorders in 34.6% of cases and microvoltage in 50%. Echocardiography is essential for confirming the diagnosis, quantifying the effusion, assessing its impact on the cardiac chambers, guiding evacuation, monitoring progress and sometimes guiding the search for an aetiology. Pericardial effusion was present in 100% of our patients; SIDIBE [8] found it in 55.1% of patients. Pericardial effusion was moderate or very abundant in 54.7% of patients. Pericardial puncture was performed in 17.2%; the fluid was citrine yellow in 72.7% of cases, compared with 38% in SIDIBE [8] in Bamako in 2007. Biological inflammatory tests included CRP in all patients, which was elevated in 57.8% of cases, close to the 66.25% reported by KINGA [4]. Cardiac muscle troponin protein was elevated in 2 patients (3.1%) in the context of a myocardial infarction. This result is similar to that of GRIBAA [2], who found CRP to be elevated in 66.4% of cases and troponin in 3.9%. The aetiology of pericarditis was not found in 55.4% of cases, in agreement with the data in the literature [1] [2]; in 18.8% it was secondary to decompensation of heart failure, in 12.5% to renal failure and in 4.7% to myocardial infarction. In his 2022 study of the clinical and aetiological features of acute pericarditis in internal medicine, Ibrahim observed that 22.8% of pericarditis was idiopathic [12]. HIV seropositivity was observed in 3.1% of patients. In 2007, MENTA [9] found HIV to be the primary aetiology, followed by tuberculosis, partly explained by the nature of his study, which was carried out in HIV-immunocompromised patients. The outcome was favourable in 92.2% of cases. In a 2008 study of people living with HIV in Mali, BA reported a 31% cure rate [13]. Persistent pericardial effusion was observed in one patient (1.6%) and recurrence in 3.1%. The frequency of recurrence was 24% in GRIBAA [2], which is significantly higher than our result and may be explained by the large size of his study series. The morality rate was 3.1%, higher than the 1.1% of KYTÖ [14].

5. Conclusion

Pericarditis is a frequent complaint in cardiology. It is easy to diagnose, but etiological research remains a major difficulty in our resource-limited countries.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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