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Research Article

Infective Endocarditis at the Yaounde General Hospital: Clinical aspects and outcome (Case Series)

Abstract

Introduction: Infectious endocarditis (IE) is a severe pathology. Its epidemiological, clinical and evolutive profile varies a lot depending if it is in the context of a developed country or developing country. In our context, very little data exists on the subject.

Objectives: Describe the clinical aspects and outcome of IE in the Yaoundé general hospital.

Methods: We carried out a descriptive retrospective study using clinical records of patients who had presented with IE in the cardiology unit of the Yaoundé general hospital from June of 2008 to May of 2013.

Results: During this 5year period, 1846 patients were admitted in the cardiology unit and 10 of these cases were IE giving a hospital prevalence of 0.54%. The sex ratio was 1. The average age of the patients was 44.7 +/- 14.2 years. Rheumatismal valvulopathy was found as the most frequent predisposing factor, with 50% of the cases. The most frequent symptoms were fever and a heart murmur, which were found in 100% and 90% of the cases respectively. An inflammatory syndrome with anaemia was found in 90% of cases, leucocytosis with predominance of polymorphological neutrophils (PMN) in 80%, a raised ESR and CRP in all the patients. Hemocultures were positive only in 30% of the cases; however 60% of the patients had just one pair hemoculture done. Streptococcus was found in 2 cases and staphylococcus in 1 case. On echocardiography, vegetation and valvular regurgitation were found in all the patients. The antibiotherapy protocols were globally in conformity with recommendations and 40% of the patients completed their treatment. We found 4 deaths.

Conclusion: IE is a rare pathology in our unit. Rheumatismal valvulopathy is the principal predisposing factor. Its management is limited by technical conditions and economic difficulties.

Introduction

Bacterial endocarditis or infectious endocarditis (IE) is secondary to the graft and proliferation of an infectious agent (bacterial or fungal) on the endocardium of a valve during a bacteraemia [1].

It is a pathology with a difficult diagnosis, very demanding management and severe complications [2].

Its epidemiology, clinical picture and its microbiological spectrum in developing countries show some particularities with respect to what is seen in the developed countries [3].

In our setting, where there exists very little scientific data on this subject; it is necessary to make an assessment in order to better understand the amplitude of the problem, evaluate practices and results and finally, have a clear perspective.

It is in this context, that it seemed useful to carry out this work entitled: "Infectious endocarditis in a group of patients in the Yaoundé general hospital: clinical aspects and outcomes".

Methodology

It was a descriptive retrospective study on clinical records. Data was collected in the cardiology unit of the Yaoundé general hospital over a period of five years running from June 2008 to May 2013. We included all clinical records classified as infectious endocarditis during the study period.

Procedure

All clinical records classified as IE were collected.

These records were then examined, and we collected the following data with the aid of a pre-established questionnaire:

The age and sex of the patients.

The hemodynamic parameters: arterial blood pressure, pulse.

Predisposing factors to IE: valvulopathy, congenital cardiopathy, intracardiac prosthetic device, intravenous drug abuse, and immunodepression.

Symptoms of IE: fever, murmur, splenomegaly, vascular phenomena, immunological phenomena and signs of heart failure.

Inflammatory workup: Complete Blood Count (CBC), Erythrocyte Sedimentation Rate (ESR), and C-reactive protein (CRP). Anaemia was defined as haemoglobin level lower than 12g/dl. Leucocytosis was defined as a blood count of neutrophils greater than 10000/mm³. The ESR was considered accelerated for a value greater than age/2 or (age + 10)/2 in the second hour in the man and woman respectively.

The CRP was considered increased for any value greater than 20mg.dl.

Hemocultures: number and results [Table 1,2].

The classification into definite and possible endocarditis according to Duke University [4].

Echocardiographic data: leaks, vegetation, abscess, chordal rupture.

The antibiotherapy protocol used: route of administration and time.

The patient's evolution: recovery, complications, deaths.

Results

Over the 5 year period, we found 10 cases of infectious endocarditis out of 1846 patients that were admitted in the

cardiology unit giving us a hospital prevalence of 0.54% and an incidence of 2 cases per year. The two sexes were equally represented. The age of the patients varied between 15 and 72 years with an average of 44.7 years and a standard deviation of 14.2 years.

The most predisposing factor was found to be rheumatismal valvulopathy, which was seen 5 cases, that is, 50% followed by degenerative valvulopathies (02 cases) and valvular prosthesis (02 cases); we found a case of congenital cardiopathy and a case of immunodepression due to HIV.

Fever (10 cases: 100%) and the presence of a heart murmur (90%) were the most frequent signs found. We had one case with Osler's nodes.

One patient presented with a stroke complicating an aortic endocarditis on a rheumatismal valvulopathy.

The biological inflammatory syndrome was very present with microcytic hypochromic anaemia in 9 out of 10 patients, a neutrophilic leucocytosis in 8 cases, and an increase in erythrocyte sedimentation rate and a positive CRP in all the patients.

The majority of patients (60%) had just one pair of hemoculture.

The germs found were one non-groupable streptococcus, one streptococcus viridans and one staphylococcus aureus.

Vegetation and valvular regurgitation were present in all the patients.

Otherwise, transthoracic echocardiography was completed by a transoesophageal echocardiography in two patients.

A mitral valve affection was the most frequent, it was found in 6 out of 10 subjects making up for 60%; followed by that of the aortic valve in 3 subjects; and we observed one case of tricuspid vegetation in a haemodialysis patient.

Following the modified Duke classification, IE was definite in 70% of patients and possible in 3 patients.

With respect to treatment, the antibiotherapy was adapted to the germ found on a positive hemoculture. In other cases, it was probabilistic depending on the clinical presentation. Only 40% of the patients completed their treatment. The principal reason for interrupting treatment with parenteral antibiotics was financial.

We found 3 deaths of which, two were due to uncontrolled sepsis and one in the context of an acute heart failure.

Discussion

Our study was carried out over a period of 5 years, during which 1846 patients were hospitalised in the cardiology unit. Among these patients, 10 were admitted for IE, definite or possible, according to the modified Duke classification.

Table 1 : Hemocultures.

	Frequency	Percentage
Number of hemoculture pairs		
1 pair	6	60 %
2 pairs	3	30 %
≥ 3pairs	1	10 %
Germs		
Streptococcus	2	20 %
Staphylococcus	1	10 %
Others	0	0 %
Negative cultures	7	70 %

Table 2: Echocardiographic findings.

Signs	Frequency	Percentage
Vegetations	10	100 %
Leak	10	100 %
Abscess	1	10 %
Chordal rupture	1	10 %

Epidemiological data

IE is a rare pathology in our unit. Its hospital prevalence was 0.54%. In literature, the frequency of IE varies a lot [5]. Patients suffering from IE are middle-aged patients. Indeed, 60% of the series had an age between 16 and 59 years; and the mean age was 44.7 +/- 14.2 years. In developing countries like ours, IE affects mostly young people because the principal predisposing factor is rheumatismal valvulopathy. A study in Cape Town in South Africa in 2003 [6] found a comparable mean age of 37.7 years.

In our series, the sex ratio is 1. Data from existing literature suggest a clear predominance of the male sex in IE [5,6,7], which doesn't explain our finding.

Predisposing factors

The most frequent predisposing factor seen was rheumatismal valvulopathy, found in 5 patients (50% of the series). These results are similar to data found in literature [8,9]. It is well known that rheumatismal valvulopathy is very frequent in our setting. Contrary to developed countries, where it is a major risk factor [10], intravenous drug abuse was not found in our series; it stays without, doubt a very rare practice in our country. Emerging factors like intracardiac prosthesis [11] were not also found.

Clinical and paraclinical presentation

Persistent fever was the predominant clinical sign; it was found in all the patients. A murmur, alleged to be recent or a modification of a pre-existing murmur was found in eight out of our ten patients. These results are similar to data found in literature [5,8,9].

Hemocultures were done for all the patients. But, in the majority of cases (60%), only one pair of hemocultures was done contrary to recommendations that says 6 pairs should be done [5]. Just one patient actually did more than two pairs of hemoculture. Hence, the microbiological diagnosis could be confirmed in three patients only. This weakness in diagnosis is due to the poor economic and technical setting. Out of the three positive microbiological diagnoses, streptococcus was identified in 2 cases; and in the last case, it was a staphylococcus. These results, even though insufficient for a generalisation, were comparable to data found in literature. Actually, all studies find streptococcus as first cause in bacterial aetiology of infective endocarditis [6,8,9].

All patients benefitted from at least a transthoracic echocardiography (TTE). Two out of these patients did a transoesophageal echocardiography (TOE). The combined use of these two techniques, if necessary, making more use of the better sensibility and specificity of the TOE [12], permitted the finding of the principal lesion in IE (valvular vegetation) in all the patients in whom the diagnosis was retained.

Treatment

Generally, the antibiotherapy protocols were prescribed

following recommendations [5]. However, in some patients, the IV route was replaced with the oral route due to financial restraints.

Evolution and complications

The mortality in our series was too high. Actually, 30% had a fatal evolution. Literature describes IE as a severe disease with a mortality varying between 9 to 30% [13,14,15]. The high mortality found in our series is probably multifactorial: late diagnosis with poor observance to treatment; in addition, certain complications that can lead to death, notably uncontrollable sepsis and acute heart failure, cannot benefit from adequate emergency surgical intervention in our context. Whereas, it is well known that in such situations, only emergency surgery can help to ameliorate the prognosis [16].

Conclusion

Infectious endocarditis is a rare disease in our unit. It represents 0.54 of admissions in the cardiology unit. It is a pathology with a pejorative prognosis with increased mortality of up to 30%. The patients are middle-aged. The most frequent predisposing factor usually seen is rheumatismal valvulopathy, which is found in 50% of the cases. Its management in our unit has met with many difficulties, notably diagnostic and therapeutic, and all these due to a precarious economic context.

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