

Epidemiology and Hospital Mortality of Aortic Dissection in the Cardiology Department of the Ignace Deen National Hospital CHU of Conakry

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Abstract

Introduction: Aortic dissection is a cardiovascular emergency little described in our context. Its management remains difficult, requiring a therapeutic course combining medical and possibly surgical treatment. Our objective through this study was to determine the frequency and hospital mortality rate of aortic dissection in order to improve its management. **Patients and Methods:** We have realized in the Cardiology Department of the Ignace Deen National Hospital UH Conakry, a descriptive retrospective study of a duration of 4 years from January 1, 2020 to December 31, 2023 including all patients hospitalized for aortic dissection confirmed by the thoracic angioscanner. **Results:** According to our study, the hospital frequency of aortic dissection was 0.56%, or 6 cases out of 1069 patients. The average age was 67 years. The male predominance (66.67%) was notable, with a sex ratio of 2. Arterial hypertension was the only risk factor found and accounted for 50% of cases. The management of our patients was strictly medical, based on the control of pain, heart rate and blood pressure by analgesics and beta-blockers. The surgery was not performed in our patients due to the inadequacy of the technical platform, by the absence of a thoracic and vascular surgery service. The response to treatment was marked by a regression of pain in 66.67% and a control of blood pressure in 33.33%. The evolution was favorable in 66.67% and unfavorable with deaths in 33.33%, hence a hospital mortality at 33%. **Conclusion:** Aortic dissection is a rare, but serious acute condition requiring urgent medical and surgical management. The management of this pathology is a real challenge in our context. This study has highlighted a similarity of our data to some of the literature, but it remains insufficient due to its monocentric nature and its short duration.

Keywords

Aortic Dissection, Morbidity and Mortality, Ignace Deen Hospital

1. Introduction

Aortic dissection is characterized by a tear in the inner layer of the aorta leading to the establishment of a false channel in the vascular wall [1]. This is a highly fatal cardiovascular emergency [2]. It represents the most common aortic emergency, with an annual incidence of 3 to 4 per 100,000 in the United Kingdom and the United States [3]. Its incidence is 2.6 to 3.5 cases per 100,000 person-years according to the ESC in 2024 [4]. It remains more common in older men but is more fatal for women [5]. The prognosis is serious, with a pre-admission mortality of 20% and hospital mortality of 30% [3]. Aortic dissection is a serious condition rarely described in our context [6]. In developing countries, managing this condition is extremely difficult [7]. In Guinea, Koivogui in 2024 had reported 1.5% of aortic dissection among cardiovascular emergencies to the cardiology department of the Ignace National Hospital Deen [8]. Therefore, although this pathology is uncommon, given its major morbidity and mortality, it requires urgent management, combining medical treatment and possibly surgery according to the type of dissection [9]. Faced with the lack of data on the epidemiological characteristics of patients, the management and evolution of this pathology in our country despite the clinical severity and prognosis in the absence of adequate care, we decided to conduct this study in order to contribute to harmonizing the management of this condition in our context.

2. Methodology

We conducted, in the cardiology department of the Ignace UH Conakry National Hospital from January 01, 2020 to December 31, 2023, a retrospective descriptive study including all patients admitted or hospitalized during this period for aortic dissection, which was confirmed by the chest scan. We used as material for our study the records of patients treated for aortic dissection during the study period. Our study variables were qualitative and quantitative with the following characteristics: epidemiological and evolutionary. The quantitative variables were the age of the patients divided into slices and the frequency defined by the ratio of the number of patients with an aortic dissection on the number of hospitalized patients in the department during our study period. Sex was classified into female and male in search of predominance by sex-ratio calculation. The clinical data studied were the major risk factors (arterial hypertension, tobacco, dyslipidemia) and the other risk factors for aortic dissection were sought in particular: family history, certain genetic conditions (Marfan syndrome, Ehlers-Danlos, ...), valvulopathies (aortic bicuspidia, aortic insufficiency), ...; the major symptoms

sought were: chest pain, dyspnea, syncope and lipothymia and physical signs (blood pressure asymmetry, aortic insufficiency breath). At the paraclinical level, we studied the echocardiographic signs (Veil or intimal, aortic insufficiency, pericardial effusion, dilatation of the ascending aorta) and the angioscannographic signs allowing diagnostic confirmation and the search for complications. Hospital mortality was defined as the number of cases of death in hospital due to aortic dissection. It corresponds to the number of deaths due to an aortic dissection divided by the total population. The data was electronically collected using KoboToolbox on a pre-established survey form, entered, analyzed and presented using software: Word, Excel, SPSS and Power Point. Our data was presented in the form of tables and figures commented, discussed and compared according to current data from the literature. Given the retrospective nature of the study, patient consent was not sought, but data confidentiality was respected.

3. Result

The age group 61 - 75 years is the most represented, with extremes of 48 years and 82 years. The average age is 67 years. According to our study, the hospital frequency of aortic dissection was 0.56%, or 6 cases out of 1069 patients. The male predominance (66.67%) was notable, with a sex ratio of 2. Arterial hypertension was the only risk factor found and represented 50% of cases. The management of our patients was strictly medical, based on the control of pain, heart rate and blood pressure by analgesics and beta-blockers. The surgery was not performed in our patients due to the inadequacy of the technical platform, by the absence of a thoracic and vascular surgery service. The response to treatment was marked by a regression of pain in 66.67% and a control of blood pressure in 33.33%. The evolution was favorable in 66.67% and unfavorable with deaths in 33, 33% hence a hospital mortality at 33%.

4. Discussion

The average age of our patients was 67 years with extremes of 48 and 82 years (**Table 1**) and the male predominance was clear with 66.67% of men against 33.33% of women with a sex ratio of 2 in favor of men (**Figure 1**). Maximilien *et al.* [10] and Hagan *et al.* [11] reported 65.3% and 63% male predominance, respectively, confirming the literature data. According to our study, the hospital frequency of aortic dissection was 0.56%, or 6 cases out of 1069 patients. Our result is different from that reported by Koivogui K. [8], who found a slightly higher result than ours. We explained this difference by the fact that in Koivogui's series, patients with suspected diagnoses were included, unlike in our case where confirmation of the diagnosis by CT angiography was essential. Arterial hypertension was the only risk factor found within our study population and represented 50% of cases (**Figure 2**). This result is in agreement with the data of some authors mentioning arterial hypertension as the most incriminated risk factor [5]. Hypertension is therefore a major risk factor for DA because it promotes the degeneration

of smooth muscle cells making up the wall, which coupled with other histological modifications increases the risk of dissection [12] and it has a triggering and aggravating role in dissection [13] [14]. The other congenital and hereditary etiologies had not been found and this could be explained by the difficulty of diagnostic accuracy due to the inadequacy of local technical platforms. On the symptomatic level, chest pain was the main symptom encountered in all patients (100%). Our data are close to some authors [9] [15]. Acute aortic insufficiency is the most observed complication in type A dissections. The management of our patients was strictly medical based on symptom control and monitoring. The surgery was not performed in our patients due to the inadequacy of the technical platform and the absence of a trained cardiovascular surgery team. The lack of certain emergency medicines, notably Level III antalgic drugs and parenteral beta-blockers in our hospital structures and their high cost have constituted an inadequacy in the management of our patients. This shortage of emergency drugs is explained by the constant lack of supply in emergency care units and the absence of health insurance for our patients to cover emergency care; also by the scarcity of local pharmacies providing these emergency drugs. In a context where vascular surgery is not performed, stabilizing patients in emergencies is a critical factor, and in our situation, the shortage of these emergency drugs was a major problem in the urgent care of our patients. The hospital outcome of our patients was favorable in 66.67% and unfavorable with death in 33.33% (Figure 3). The results of some authors [11] [16] [17] (respectively 27.4% and 27.7%) of hospital mortality, were close to ours. This result could be explained by the inadequacy of the technical platform in cardiovascular surgery service able to respond to the proper management of this emergency. According to the recommendations of the 2024 ESC, for type A acute aortic dissection, the hospital mortality decreased from 31% to 22% due to better surgical results; for dissection Type B acute aortic, hospital mortality has remained stable over the years at 14% [15] [18] [19]. According to the IRAD register, hospital mortality from aortic dissection remains close to 20% over the last 20 years [11] [20].

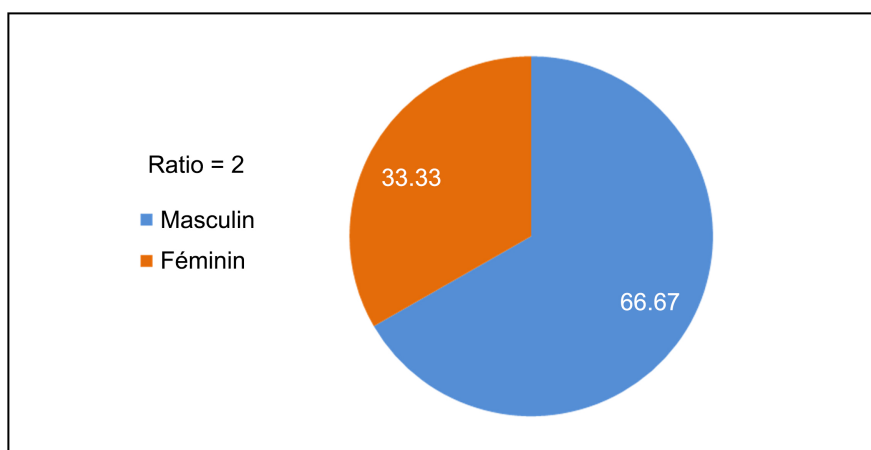


Figure 1. Distribution by gender.

Table 1. Distribution by age.

Age (years)	Numbers	Percentage (%)
46 - 60 Years	2	33.33
61 - 75 Years	3	50
76 - 85 Years	1	16.67
Total	6	100

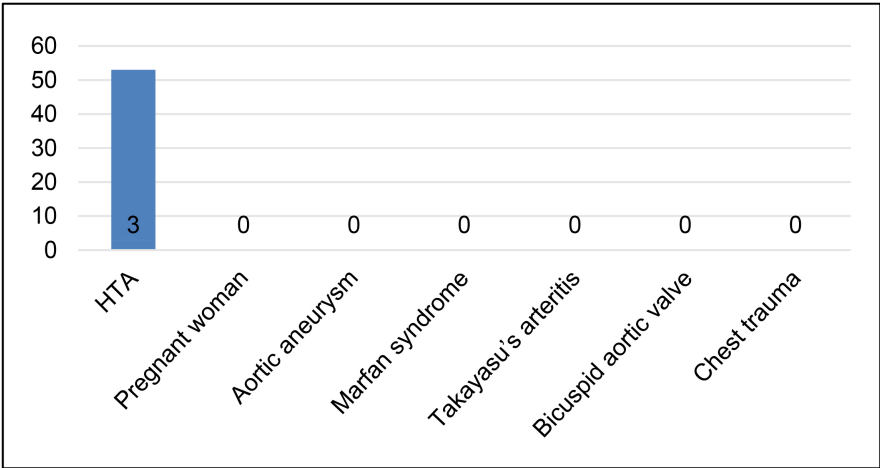


Figure 2. Distribution according to risk factors.

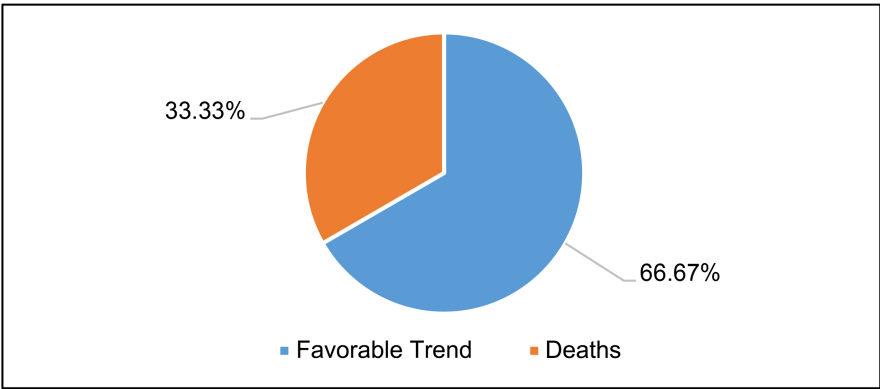


Figure 3. Distribution according to the evolution.

Study limitations: our study has some limitations regarding its single-center nature, the small sample size, and the lack of in-depth statistical analysis. A larger study including a significant number of patients could better address these gaps in local data on aortic dissection.

5. Conclusion

Aortic dissection is a rare, but serious, acute condition requiring urgent medical and surgical management. The management of this pathology constitutes a real challenge in our context particularly confronted with the insufficiency of technical

platforms. This study highlighted a similarity of our data to some of the literature but it remains insufficient due to its mono-centric nature and short duration.

Author Contributions

All the authors contributed to this work by reading and approving the final version.

Conflicts of Interest

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

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