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Research Article

# Maternal Heart Disease and Pregnancy: Diagnosis and Management at the Cardiology Department of Ignace Deen Hospital in Conakry

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## Abstract

### Introduction

Heart disease during pregnancy is becoming increasingly common in our context. These situations expose women to serious complications that can lead to maternal death.

**Objective:** To describe the different heart diseases encountered in pregnant women and the multidisciplinary management strategies implemented.

### Materials and methods:

This is a longitudinal study conducted over a period of six months. All pregnant women with heart disease who were seen in outpatient consultations or hospitalised in the cardiology department were included. The variables studied were epidemiological, clinical, therapeutic and evolutionary.

### Results:

We collected 8 cases, with a mean age of 29.6 +/- 3.9 years. Heart disease was acquired in 5 cases and congenital in 3 cases. Acquired heart disease included mitral stenosis (3 cases), polyvalvular disease (1case), mechanical valve replacement (1 case) and complete atrioventricular block (1case).

Congenital heart disease included Ebstein's disease (1 case), patent ductus arteriosus (1 case), and Wolff-Parkinson-White syndrome (1 case).

The outcome was favourable in 3 cases. Two maternal deaths occurred before term, and three patients are currently being monitored.

### Conclusion:

Maternal heart disease poses a significant risk of complications during pregnancy. Management is based on a multidisciplinary approach involving cardiologists, obstetricians and anaesthetists. Strengthening prenatal screening and specialised follow-up is essential to improve the maternal-foetal prognosis.

**Key Words:** heart disease; pregnancy; management

## Introduction

Pregnancy causes significant cardiovascular changes, in particular an increase in blood volume and cardiac output of around 50% [1]. These changes, which are well tolerated by a normal heart, may be poorly tolerated in cases of pre-existing heart disease [2]. The frequency of cardiovascular disease and pregnancy varies between 0.5 and 4% [1]. It is the leading non-obstetric cause of maternal death and is responsible for 0.9 to 5% of perinatal mortality [3].

In developed countries, the distribution of heart disease has changed over the last 30 years due to improved health conditions, a reduction in the incidence of acute rheumatic fever and an increase in life expectancy, with a predominance of congenital heart disease. whereas in underdeveloped countries, including Morocco, rheumatic heart disease remains predominant, with poor management due to a lack of information,

financial resources, delayed diagnosis, and difficulties in managing RAA [4].

Heart disease during pregnancy represents an extremely heterogeneous group of conditions, among which there are few very high-risk situations. Heart diseases that pose a high risk of complications during pregnancy are mainly Eisenmenger syndrome and primary pulmonary hypertension, Marfan syndrome associated with ascending aortic aneurysm, severe valvular stenosis, dilated cardiomyopathy and mechanical prostheses [5]. The combination of pregnancy and pre-existing maternal heart disease remains high risk and can be a cause of maternal and foetal morbidity and even mortality [6].

## Materials and methods

This was a longitudinal study conducted over a period of six months from 14 December 2024 to 14 June 2025 in the cardiology department of Ignace Deen Hospital in Conakry. The study included all pregnant women with heart disease who were seen in outpatient consultations or hospitalised in the department. All patients with heart disease associated with pregnancy, whether pre-existing, occurring during pregnancy, or discovered postpartum during the study period, were included. All women seen in consultation or hospitalised who did not have heart disease associated with pregnancy were excluded.

The variables studied were epidemiological, clinical, paraclinical, therapeutic and evolutionary, divided into:

Sociodemographic data: frequency, age (in years),

Cardiovascular disease risk factors: oral contraceptives; smoking; obesity; high blood pressure,

### Clinical data: parity; functional signs

Paraclinical data: electrocardiogram, cardiac Doppler ultrasound Management: type of delivery; medical treatment

### Hospital progress: complications

Socio-epidemiological, clinical, therapeutic and evolutionary data were collected using a dedicated form. The analysis was performed using SPSS 21 software, with frequencies for qualitative variables and means for quantitative variables. The data were collected anonymously, ensuring confidentiality.

## Results

Out of a total of 317 patients, we identified 8 cases of heart disease and pregnancy, representing a frequency of 2.5%, with a mean age of 29.6 +/- 3.9 years (Table I). Oral contraceptives were used by 2 of our patients (Figure I); according to parity, 4 of our patients were multiparous (Figure II); functional signs were dominated by dyspnoea at rest in 4 of our patients (Table II). Heart disease was acquired in 5 cases and congenital in 3 cases.

| Variables | Number (N=8) | Percentages (%) |
|---|---|---|
| **Age (years)** | | |
| 15-25 | 1 | 12.5 |
| **26** | **6** | **75** |
| > 35 | 1 | 12.5 |
| **Total** | 8 | 100 |

**Table I:** Distribution of patients according to sociodemographic characteristics

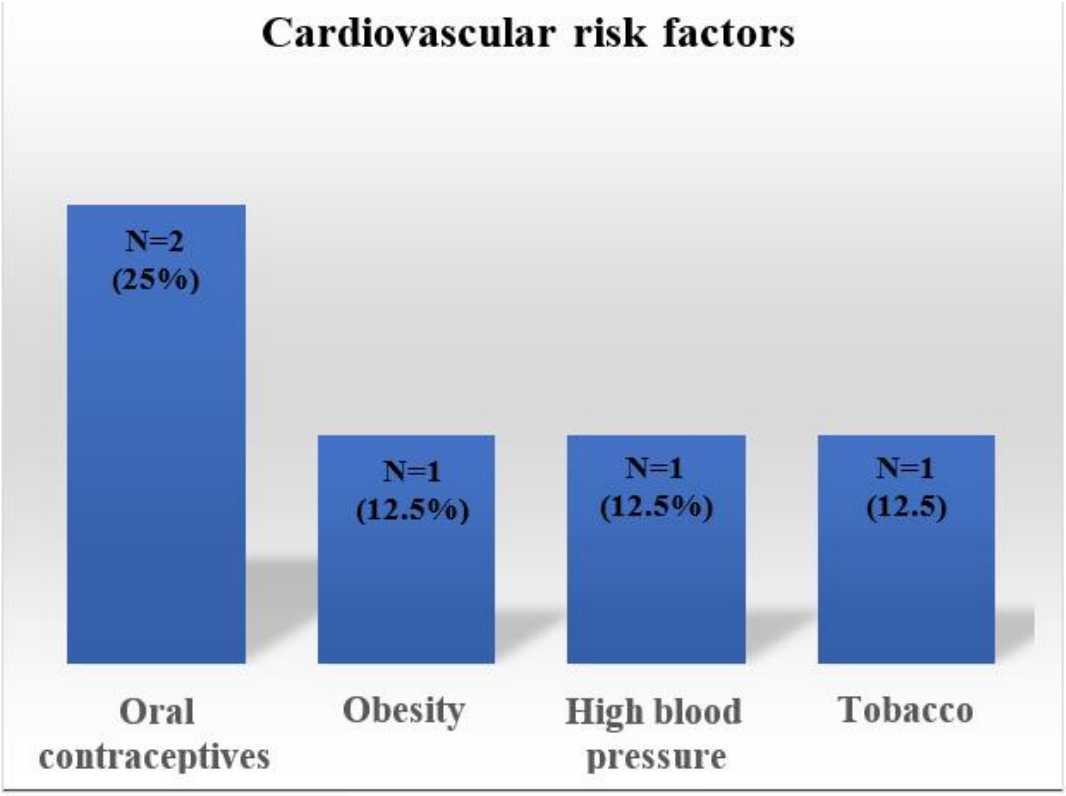


**Figure 1:** Distribution of patients according to cardiovascular risk factors

| Functional signs | Number | Percentages (%) |
|---|---|---|
| **Dyspnoea at rest** | **4** | **50** |
| Lower limb oedema | 3 | 37.5 |
| Palpitations | 1 | 12.5 |
| Chest pain | 1 | 12.5 |
| Hepatic pain | 1 | 12.5 |

**Table II:** Distribution of patients according to functional signs

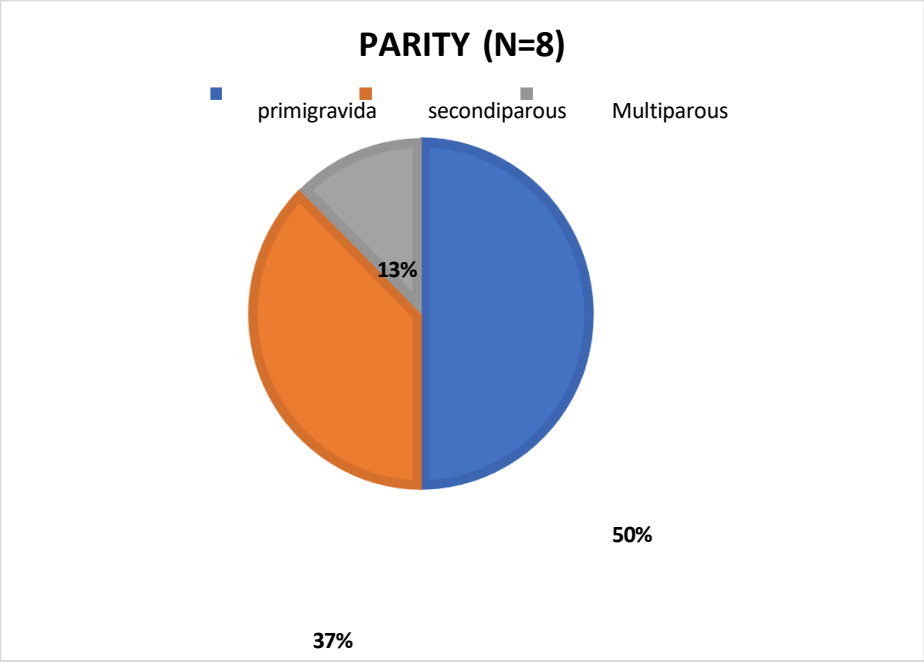


**Figure 2**: Distribution of patients according to parity

Among the acquired heart diseases, there were 3 cases of mitral stenosis, 1 case of polyvalvular disease, 1 case of mechanical valve replacement, and 1 case of complete atrioventricular block.

Congenital heart disease included Ebstein's disease (1 case), patent ductus arteriosus (1 case), and Wolff-Parkinson-White syndrome (1 case) (Table III). On electrocardiogram, left atrial hypertrophy was the most common finding in 3 cases (Table IV). intermediate left ventricular ejection fraction impairment was the most common abnormality found on cardiac Doppler ultrasound (5 cases) (Table V).

| Type of heart disease | Number | Percentages (%) |
|---|---|---|
| **Acquired** | | |
| **Mitral stenosis** | **3** | **37.5** |
| Mitral and aortic polyvalvular disease | 1 | 12.5 |
| Mechanical valve prosthesis | 1 | 12.5 |
| Complete atrioventricular block | 1 | 12.5 |
| **Congenital heart disease** | | |
| Wolf-Parkinson-White syndrome | 1 | 12.5 |
| Eibstein's disease | 1 | 12.5 |

**Table III:** Distribution of patients according to type of heart disease

| ECG abnormalities | Number | Percentages (%) |
|---|---|---|
| **Left atrial hypertrophy** | **3** | **37.5** |
| Left ventricular hypertrophy | 1 | 12.5 |
| Tachycardia | 1 | 12.5 |
| Complete atrioventricular block | 1 | 12.5 |
| Right ventricular hypertrophy | 1 | 12.5 |

**Table IV:** Distribution of patients according to type of ECG abnormalities

Caesarean section was the most common mode of delivery, particularly in 7 patients (Figure III).

| Cardiac ultrasound | Number | Percentages (%) |
|---|---|---|
| **Intermediate LVEF** | **5** | **62.5** |
| Dilated VCI | 4 | 50 |
| OG dilatation | 3 | 37.5 |
| RV dilation | 3 | 37.5 |
| Rheumatic valvular heart disease | 3 | 37.5 |
| Preserved LVEF | 2 | 25 |
| Reduced LVEF | 1 | 12.5 |
| LV dilation | 1 | 12.5 |
| OD dilation | 1 | 12.5 |
| Intracavitary thrombus | 1 | 12.5 |

**Table V:** Distribution of patients according to the type of abnormalities detected by cardiac Doppler ultrasound

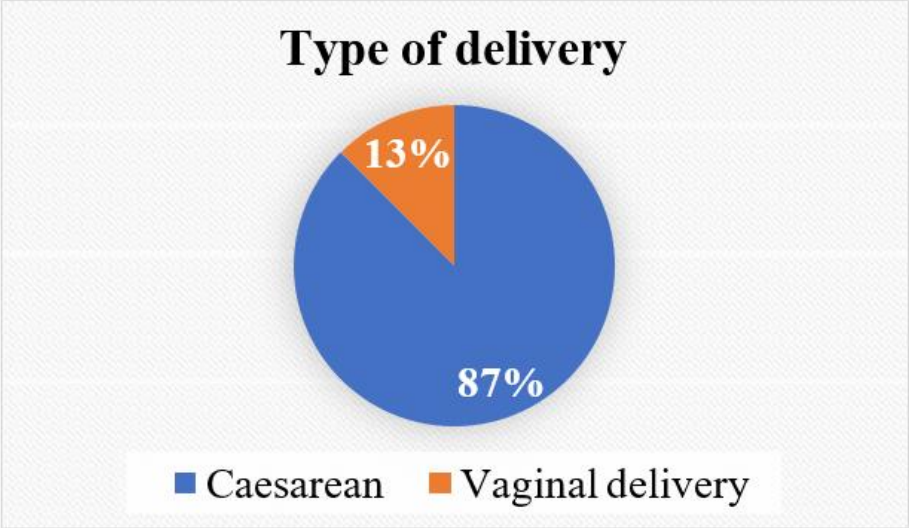


**Figure 3:** Distribution of patients according to mode of delivery

Unfractionated heparin and loop diuretics were the most commonly used drugs in 3 and 2 patients, respectively, and external electric shock was used in one patient (Table V). The outcome was favourable in 3 cases. Two maternal deaths occurred before term (Table V).

| Treatment | Number | Percentages |
|---|---|---|
| **Unfractionated heparin** | 3 | 37.5 |
| Loop diuretic | 2 | 25 |
| Methyldopa | 1 | 12.5 |
| Beta blocker | 1 | 12.5 |
| External electric shock | 1 | 12.5 |
| **Progression** | | |
| **Favourable** | 3 | 37.5 |
| **Complication** | 3 | **37.5** |
| **Death** | 2 | **12.5** |

**Table VI:** Distribution of patients according to type of treatment and outcome

## Discussion

Our longitudinal study, conducted in the cardiology department of Ignace Deen Hospital in Conakry, encountered some limitations and difficulties, namely a lack of financial resources limiting the performance of certain additional tests, but also the limited technical facilities available for an adequate diagnostic and therapeutic approach.

In the literature since 1930, the incidence of cardiac disease in pregnant women has remained stable at between 1% and 2%, with more recent estimates ranging from 0.1% to 1.4% [7]; in our study of a total of 317 patients, we identified eight cases of heart disease and pregnancy, representing a frequency of 2.5%; The frequency found in our study differed from that found by Patrick O'Brien et al [8] in England, who found 0.8% of cases of heart disease and pregnancy in their study, and that of Abdèlhadi et al in Morocco [9], who found 1% of cases in their study. This difference could be explained by the limited access to specialised care in our context, but also by the delay in treatment, as some pregnant women, even those with symptoms, wait too long before consulting a doctor.

The age of the patient plays a major role in assessing maternal risk. In our study, the average age was 29.6 +/- 3.9 years, which was comparable to the results of Diao et al in their study in Senegal, which found an average age of 28.4 years. Statistically, the majority of pregnant women in West African countries are under 30 years of age, as the birth rate is high in this

age group. These young women with already advanced but undiagnosed valvular heart disease will reveal or decompensate during pregnancy [10].

In terms of parity, four of our patients were multiparous. Our study was comparable to African series, particularly in Mali in the study by Bouare et al, where the majority of cases were multiparous (80.7%). This could be explained by the fact that in certain cardiac pathologies, multiparity represents a significant risk of maternal-foetal complications [11].

Heart disease was acquired in 5 cases and congenital in 3 cases.

Among the acquired heart diseases, mitral stenosis was found in 3 cases in the study by Abdellaoui et al in Fez, Morocco, and mitral stenosis was found in 5 cases, or 50%. These data are comparable to data in the literature, according to which pregnancy is a definite factor in the decompensation of severe mitral stenosis [12].

Impaired intermediate left ventricular ejection fraction was the most common abnormality found on cardiac Doppler ultrasound in five cases.

Our results differed from those of Mahougon et al [13] in Benin, who found reduced LVEF in 30 patients, or 57.7%. This could be explained by the fact that our patients were seen late, at a decompensated stage of the underlying heart disease.

Caesarean section was the most commonly used mode of delivery, particularly in 7 patients (14.5%) reported by Ben Assia [14]. According to the literature, vaginal delivery is recommended if heart disease is controlled (NYHA stage I and II) [15]. In our study, dyspnoea at rest was the dominant functional sign contraindicating vaginal delivery.

Unfractionated heparin and loop diuretics were the most commonly used drugs in 3 and 2 patients, respectively, and 180 joules of external electric shock was used in one patient who presented with haemodynamic instability due to Wolf Parkinson White syndrome.

The outcome was favourable in three cases. Two maternal deaths occurred before term, and hospital mortality was recorded in 13.5% of cases.

In Mikou et al [16]. This rate can be explained by the lack of access to specialised care and precarious living conditions.

## Conclusion

Maternal heart disease poses a significant risk of complications during pregnancy. Management is based on a multidisciplinary approach involving cardiologists, obstetricians and anaesthetists. Strengthening prenatal screening and specialised follow-up is essential to improve the maternal-foetal prognosis.

### Conflict of interest

None

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We would like to thank everyone who participated in the development of this study.

### Authors' contributions

All authors have read and approved the final, revised version of this article

Keita Fatoumata Binta and Camara Ousmane Mamadama contributed to the study design and discussion of the results.

Keita Fatoumata Binta and Camara Ousmane Mamadama contributed to data collection and statistical analysis for the study

Bah Mamadou Bassirou actively participated in writing the manuscript and revising the article, ensuring the accuracy and clarity of the information presented.

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