

## Ischemic Heart Failure: About 140 Cases

B. Dihi<sup>1\*</sup>, H. Eljazouli<sup>1</sup>, A. Chetoui<sup>1</sup>, S. Arioua<sup>1</sup>, A. Zbitou<sup>1</sup>, A. Bouzerda<sup>1</sup>, A. Khatouri<sup>2</sup>

<sup>1</sup>Cardiology Department of Avicenne Military Hospital in Marrakech, Morocco

<sup>2</sup>Medical Pole Avicenne Military Hospital of Marrakech, Morocco

DOI: [10.36347/sjmcr.2022.v10i06.019](https://doi.org/10.36347/sjmcr.2022.v10i06.019)

Received: 03.05.2022 | Accepted: 07.06.2022 | Published: 16.06.2022

\*Corresponding author: B. Dihi

Cardiology Department of Avicenne Military Hospital in Marrakech, Morocco

### Abstract

### Original Research Article

Ischemic heart failure is a major public health problem because of its frequency and its consequences in terms of morbidity and mortality. The incidence and prevalence of ischemic heart failure are increasing because of the aging of the population, but also because of better management of ischemic heart disease. The management of ischemic heart failure has become easier with diagnostic advances and the advent of new cardiac imaging techniques as well as therapeutic advances (inhibition of neurohormonal activation and ventricular remodeling, myocardial revascularization). In our study, we have essentially tried to highlight the different risk factors of ischemic heart failure but also some of its clinical, paraclinical, and therapeutic aspects. The treatment of ischemic heart failure in our context is in accordance with the literature, highlighting the interest of primary prevention consisting of the management of cardiovascular risk factors and the optimization of the drug treatment of these patients.

**Keywords:** Heart failure-myocardial failure-coronary angiography.

Copyright © 2022 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

## INTRODUCTION

Ischemic heart failure is a cardiovascular disorder due to structural and functional cardiac abnormality caused by myocardial ischemia resulting in the inability of the heart to deliver sufficient oxygen flow to meet the needs of the body at normal levels of filling pressures. It is a major public health problem because of its frequency and consequences in terms of morbidity and mortality and its impact on the health care system [1].

Coronary artery disease is the cause of the largest number of heart failure patients in Western countries [2].

The outcome of heart failure remains unimpressive. Early diagnosis and adequate treatment according to recommendations, on the other hand, play a key role in reducing the morbidity related to this disease [2].

## MATERIAL AND METHODS

A retrospective descriptive and analytical study of 140 cases of ischemic heart failure, conducted in the cardiology department of the Avicenne military hospital in Marrakech over a 2-year period, between January 2018 and December 2020.

Included in our study were, Patients older than 18 years, with acute coronary syndrome complicated by heart failure, or with a discharge diagnosis of ischemic heart failure.

Excluded from our study were Patients younger than 18 years of age, Patients with acute heart failure and Patients with cardiogenic shock on admission.

The aims of our work were to describe the epidemiological, clinical and evolutionary aspects of ischemic heart failure in the Avicenne hospital of Marrakech, to evaluate the effectiveness of the therapeutics used in our training and to compare our results with those of the literature.

## RESULTS

The mean age of this study was  $67.2 \pm 10.9$  years with extremes ranging from 32 to 92 years with a clear male predominance of 81.5%.

Our patients presented the association of several cardiovascular risk factors: smoking, arterial hypertension, antecedent ischemia and diabetes were frequent and represented respectively 71%, 52%, 51% and 46%.

The clinical symptomatology was marked by dyspnea which was present in 96.9% of cases with 59.9% at NYHA stage 4.

The electrocardiogram was performed in all our patients. It showed Repolarization disorders in the first place in 87 patients (62%)

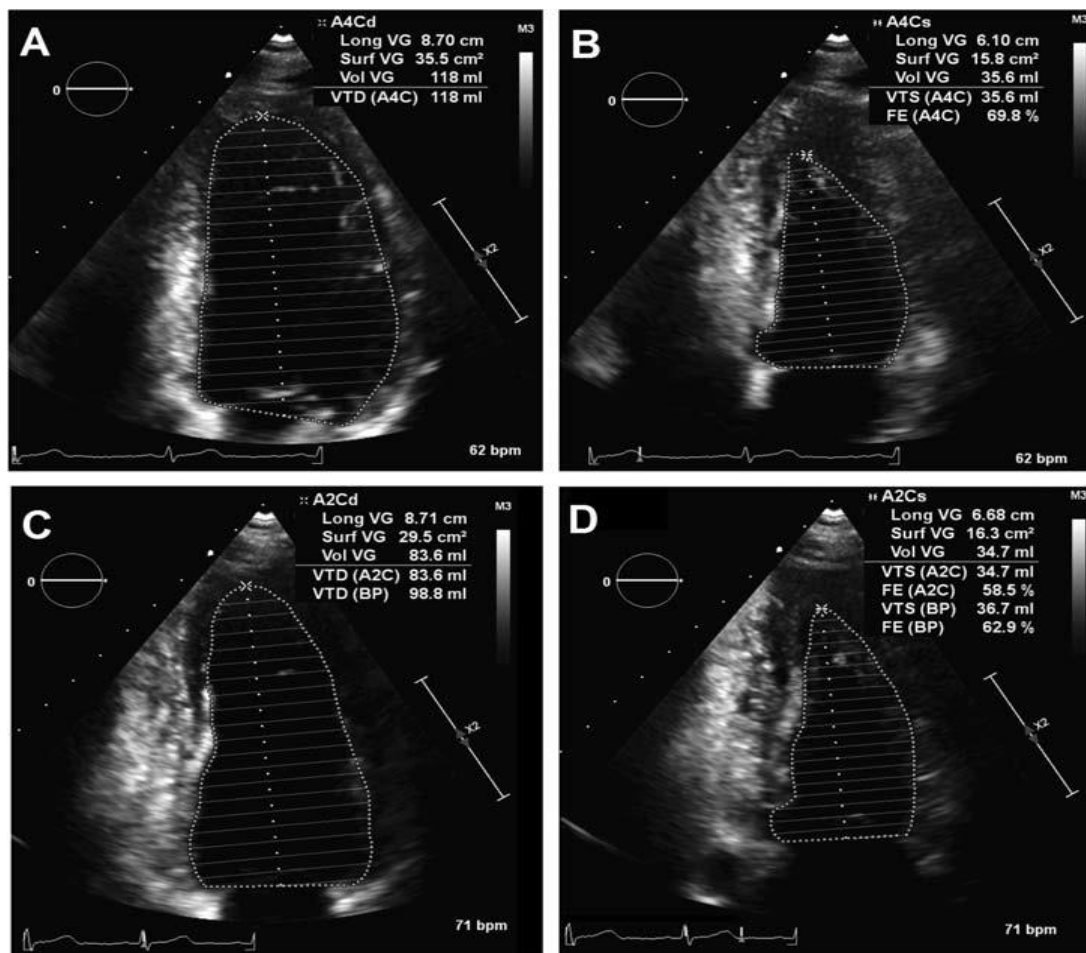
The resting ECG was abnormal in all our patients, with a clear predominance of repolarization

disorders. They were predominantly in the anteroseptal territory.

Transthoracic echocardiography was performed in all our patients and showed an impaired ejection fraction (LVEF<40%) in 71.1%.

The majority of our patients had disorders of LV segmental kinetics:

- Akinesias are noted in 72 patients or 52%.
- Hypokinesia was observed in 68 patients (48%).
- LV dilatation was found in 82% of patients.



**Figure 1: Evaluation of left ventricular ejection fraction in two-dimensional transthoracic echocardiography using the Simpson Biplan method**

At coronary angiography, monotruncal involvement was the most frequent (43.1%).

The anterior interventricular artery was involved in 50% of cases, mainly in its middle portion (33.3%), followed by the circumflex artery (21%), then the right coronary artery (17%) and finally the common trunk in 12% of cases.

All our patients were put on medical treatment in accordance with the recommendations of learned societies, 60% of patients had percutaneous coronary

angioplasty and 6% required surgery by coronary bypass grafting.

The evolution of our patients was marked by stabilization of symptoms and clinical signs under medical treatment in 85%.

This work focuses on the frequency and severity of ischemic heart failure, as well as its therapeutic problem, which encourages the attention of health professionals and officials to the epidemiological situation of this constantly increasing phenomenon in Morocco.

**Chart 1: The following chart shows the lesion topography of the different coronary arteries**

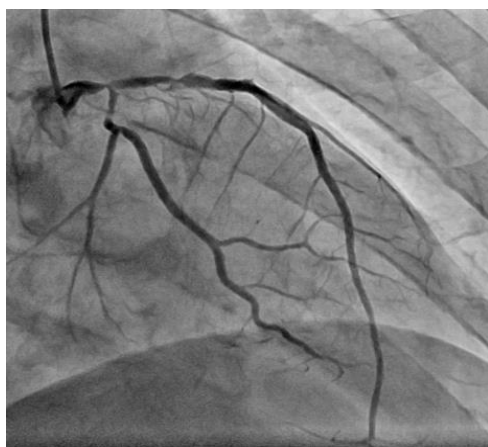
The anterior interventricular artery	50%	Proximal	13%
		medium	33,3%
		distal	4%
The left common trunk	12%	Ostial	3%
		medium	7%
		Distal	2%
The right coronary artery	21%	1er segment	11%
		2 <sup>nd</sup> segment	8%
		3 segment	2%
The circumflex artery	17%	Proximal	3%
		medium	12%
		Distal	2%



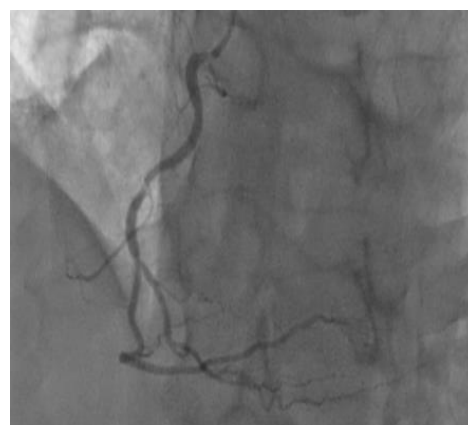
**Figure 2: Subocclusive stenosis of the middle segment of the anterior interventricular artery (arrow)**



**Figure 3: Outcome after balloon angioplasty and active stenting**



**Figure 4: Incidence of the left coronary network showing critical stenosis of the distal common trunk with tight stenosis of the proximal circumflex artery and tight stenosis of the anterior interventricular artery**



**Figure 5: Right network incidence showing significant stenosis of the ostium and middle segment of the right coronary artery**

## DISCUSSION

Ischemic heart failure occurs mainly in the 3rd decade between 50 and 70 years of age. In large retrospective series, the average age is between 55 and 70 years with a clear male predominance, which is in good agreement with the data of our study [2].

This male predominance can be explained by the fact that men have a higher risk of atherosclerosis and its complications than women due to the beneficial influence of natural estrogens on the lipid profile, BP and insulin sensitivity.

The study by Kingue *et al.*, reported a high frequency of smoking followed by hypertension and diabetes, which is consistent with the data of our study [3].

Concerning ischemic antecedents, several studies suggest that ischemic heart failure events are more likely to occur in a patient with a history of myocardial infarction. In this case, the evolution to heart failure is all the more frequent if the infarction is extensive and managed late or not reperfused, or if it involves the anterior wall, or if it is complicated by mitral insufficiency. In the study by Sanoussi *et al.*, the radial approach was the most commonly used, with a 6-French stent in 88.4% of cases [7].

Clinically, all our patients presented with exertional dyspnea, which is similar to studies in the literature.

As for physical signs, tachycardia and crepitus rales were the most common signs found in our study, and were mentioned by almost all authors [2].

Several randomized studies have shown the superiority of the radial approach over the femoral approach, particularly in terms of a significant decrease in bleeding complications [8].

In the study by Sanoussi *et al.*, the radial approach was the most commonly used, with a 6-French stent in 88.4% of cases [4].

All our patients were put on medical treatment in accordance with the recommendations of learned societies.

In Europe, the radial approach is used in more than 80% of cases, as in our study. This approach is less common in the United States, where the femoral route is more preferred [9].

A review of the various randomized trials and registries comparing percutaneous myocardial revascularization techniques with coronary artery bypass grafting surgery shows a superiority in favor of surgical treatment. Coronary surgery gave better results for the treatment of angina and the need for subsequent revascularization, with a more durable benefit [10].

It is noted that mortality and the rate of myocardial infarction were not statistically different between the two therapeutic modalities [10].

## CONCLUSION

The management of ischemic heart failure has become easier thanks to diagnostic progress and the advent of new cardiac imaging techniques as well as therapeutic progress [9].

The importance of primary prevention and especially smoking cessation in order to fight against the occurrence of this disease at an increasingly early age has been and will continue to be emphasized [10].

## BIBLIOGRAPHY

1. Ponikowski, P., Voors, A. A., Anker, S. D., Bueno, H., Cleland, J. G., Coats, A. J., ... & van der Meer, P. E. S. C. (2016). ESC Scientific Document Group. 2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure: The

Task Force for the diagnosis and treatment of acute and chronic heart failure of the European Society of Cardiology (ESC) Developed with the special contribution of the Heart Failure Association (HFA) of the ESC. *Eur Heart J*, 37(27), 2129-2200.

2. Agence de Biomedecine "Guide to the Heart Score Agence de la biomédecine -V2 version of 24/07/2018."
3. Kingue, S., Dzudie, A., Menanga, A., Akono, M., Ouankou, M., & Muna, W. (2005, September). A new look at adult chronic heart failure in Africa in the age of the Doppler echocardiography: experience of the medicine department at Yaounde General Hospital. In *Annales de Cardiologie et d'Angéologie* (Vol. 54, No. 5, pp. 276-283).
4. Sanoussi, H., Bitton, N., Kourirreche, N., Bernasconi, F., Tounsi, A., Bellemain-Appaix, A., & Jacq, L. (2020, March). Interests and limitations of percutaneous coronary intervention strategy in nonagenarian patients: A single center experience. In *Annales de Cardiologie et D'angeologie* (Vol. 69, No. 1, pp. 1-6).
5. MB-diarra. Ischemic cardiopathy in the regional hospital of BAMAKO: about 162 cases- \* Cardiology Department A Hôpital du Point G. Bamako Mali; \*\* Cardiology Department Gabrielarticle medical mali Hospital.
6. Adoubi. (2020). Weight of comorbidities in heart failure patients-Institut de cardiologie d'Abidjan, Abidjan, Cote d'Ivoire b Université de Bouaké, Bouaké, Cote d'Ivoire -science direct".
7. Adoubi, K. A., Soya, E., Bamba, K. D., Koffi, F., N'Cho-Mottoh, M. P., Diby, F., ... & Konin, C. (2020, March). Burden of comorbidities in heart failure patients hospitalized at the Abidjan Heart Institute. In *Annales de Cardiologie et D'angeologie* (Vol. 69, No. 2, pp. 74-80).
8. Komajda, M., Lapuerta, P., Hermans, N., González-Juanatey, J. R., van Veldhuisen, D. J., Erdmann, E., ... & Le Pen, C. (2005). Adherence to guidelines is a predictor of outcome in chronic heart failure: the MAHLER survey. *European heart journal*, 26(16), 1653-1659.
9. Zinman, B., Wanner, C., Lachin, J. M., Fitchett, D., Bluhmki, E., Hantel, S., ... & Inzucchi, S. E. (2015). Empagliflozin, cardiovascular outcomes, and mortality in type 2 diabetes. *New England Journal of Medicine*, 373(22), 2117-2128.
10. Neal, B., Perkovic, V., Mahaffey, K. W., De Zeeuw, D., Fulcher, G., Erondy, N., ... & Matthews, D. R. (2017). Canagliflozin and cardiovascular and renal events in type 2 diabetes. *New England Journal of Medicine*, 377(7), 644-657.