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Critically Appraise the Different Tools Available for the Assessment of Cardiovascular Risk the Heart During Confinement: Between Epidemic Risks and the Healthcare Access

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Introduction

Covid-19 has become a major public health problem on a global scale that troubles the care services offered to people suffering from chronic diseases including the cardiovascular complications.

This article summarizes the impact of the current pandemic on cardiac patients and their follow-up based on a retrospective study by comparing two different periods (before and during lockdown) in order to carry out an all-inclusive account of the available data. In so doing, a sound comprehension of the pandemic's repercussions on the follow-up of cardiac patients will be attained, as well as its impact on the quality of health services in the southern region of Morocco.

Keywords: Confinement, heart attack, SARS-COVID19, healthcare access

Methods

This is a descriptive, analytical and retrospective study carried out with patients admitted to PHC Boujdour (11,494 patients) over a period going from March 2019 to February 2021 (before and during lockdown)

the criteria for inclusion are as follows:

- Age over 16.

- Patients admitted for a cardiological motive.

- Patients with a Covid infection and/or with cardiac complications.

Patients were selected from the PHC Boujdour medical department databases, consultation and emergency department registers.

Results

We counted 11,494 patients admitted for a heart problem throughout the course of a two years period (pre-COVID and COVID period) in order to verify the impact of this health crisis on Boujdour PHC care services and the entire southern Morocco region.

For every period, the following analyses were conducted:

- The total number of urgent and non-urgent consultations.

- The Total number of hospitalizations.

- The most frequent cardiovascular risk factors.

- The most frequent motives and diagnoses.

- Different complications including death.

Overall, we noticed a substantial drop in the rate of patients who made a consultation related to a cardiological problem (less than 80% in the emergencies, and less than 46% in consultation compared to the pre-COVID period).

- In 2019, during the pre-Covid period, more than 20% of patients representing 9179 individuals declared a heart problem, 80% of which were selected by the emergency department.

- The average age of this population was 61, with age extremes ranging between 20 and 113 years, with a female predomination reaching 60% (Table 1)
- The vast majority of these patients manifested cardiovascular risk factors, of which hypertension and diabetes are the most common by (40%) followed by obesity and smoking.
- Dyspnea and chest pain were the most frequent motives during this period.
- During the same period in 2020, the comparison with the rate of patients who consulted the emergencies for a heart problem shows a remarkable drop of 46% in terms of consultations and 80% in terms of emergencies.
- As for the profile and the risk factors of the patients, we found the same criteria and results. On the other hand, we noticed a slight increase in the number of deaths during the lockdown period (11 deaths), and an increase in the number of patients admitted for pulmonary embolism and deep vein thrombosis with a notable decrease in cases of myocardial infarctions.

Concerning patients with a COVID 19 infection, the total number was 411 (representing 8% of the general population) with a male predominance attaining (59%) and an average age ranging between 18 and 87 years old. In a group of 411 patients, only 16 cases required transfer to intensive care, three of these patients presented cardiac complications throughout the course of their stay (a myocardial infarction, and two cases of pulmonary embolism).

No declaration of chloroquine's side effects was reported.

		Pre-Covid period	During Covid
Total number of heart patients		9179	2315
Number of consultations by appointment		1112	604
Number of consultations via emergency		8067	1711
Reason for consultation	Chest pain	35%	38%
	Dyspnea	39%	40%
	palpitation	24%	22%
	syncopee	2%	0%
Cardiovascular risk factors	Hypertension	35%	38%
	Diabetes	39%	40%
	smoking	24%	22%
	Dyslipidemia	20%	18 %
	Coronary heredity	2%	0%
	Obesity	40%	38%
Hospitalization diagnosis	ACS	6%	15%
	Heart failure	55%	50%

	Rhythm disorder	29 %	11%
	Pulmonary embolism	2%	8%
	Deep vein thrombosis	2%	8%
	Other	6%	8%
	Total number	49 cases	46 cases
number of deaths		4 cases	11 cases

Table 1: The prevalence of CV risk factors, and hospitalization diagnosis before and during the lockdown.

Discussion

The current pandemic has entirely altered the hospital sector and redefined various aspects of healthcare services. The confinement and the fear of contagion has contributed to a significant decrease in cases related to myocardial infarction, and even delaying the admission time compared to the pre-COVID period.

The Italian experience, based on a multicentric register, observed a notable decline of patients admitted for a heart attack in emergencies varying from 48 to more than 50% in the case of a myocardial infarction. These changes have occurred even in the last month of 2019, which had a definite impact on mortality, with a relative risk of 3.1 The ramifications on increased cardiac arrests and sudden death at home can also be very significant. Some regions in Italy have reached a rate of almost 200% as far as these criteria are concerned. (2)

It is worth noting that a multicentric register in France showed a substantial decline in admissions to intensive care units from 4.8 ± 1.6 before the health crisis, to 2.6 ± 1.5 patients per day during the confinement ($p = 0.0006$) . The authors confirmed a spectacular decrease of acute cardiovascular diseases, and that these patients may suffer from inattention and other serious consequences, with an elevation in cases of outpatient myocardial infarction, mechanical complications, heart failure, and unexplained deaths, among others. (3)

A Spanish study reported drops ranging from 40 to 81% in diagnostic and therapeutic management to capitalize on the risk of increased morbidity and mortality, and suggested that the scientific societies and health authorities should promote infusion therapy appropriately for patients with cardiac crisis. A decline in ACS admissions to CICU has been observed during this period of lockdown, as many patients refuse to be hospitalized, arrive late to the hospital, or die at home. The proportion of STEMI vs NSTEMI

increased, indicating that only severe ACS patients, those with very severe symptoms, are admitted to hospitals, while many patients with less severe symptoms prefer to stay at home. Similarly, many heart failure (HF) patients avoid hospitalization regardless of the fact that their clinical condition deteriorates; many ACS patients may have had a late admission to CICU due to a temporary unavailability of ambulances, resulting in delayed or failed revascularization. (4)

For patients with a cardiovascular disease and a COVID-19 infection, there is a high risk of developing serious aftermaths, including death in the above-mentioned countries, yet that wasn't detected in our study sample (As a matter of fact, 2% of these patients had a cardiac history, but did not report any complications after their infection). (5)

Our study highlights a range of interesting elements connected with the local specificities of the epidemiological profile, along with the importance of taking charge of patients who presented a heart problem during the health crisis. Throughout the process, we observed a gradual increase in the number of deaths and a net decrease in patients admitted for myocardial infarction. Additionally, an overall increase in hospitalizations was detected (more than 2.7%) during lockdown, which seems paradoxical compared to the current epidemiological situation. This inconsistency is explained by the restriction of transfers to level 2 and 3 hospitals, and maintaining the medical services activity dedicated to these patients.

Conclusion

Ultimately, it is fair to affirm that the world's healthcare systems are all under unbearable pressure due to the current covid-19 pandemic, which strongly affects outpatient activities and the medical care delivered to patients with heart issues.

It is necessary to take into account the repercussions of this pandemic on chronic disease care services, and to draw the attention of the authorities to the vital importance of addressing these constraints to support the public health institutions. More significantly, it is a prerequisite to reinforce the work in the cardiac rehabilitation and catheterization departments in order to compensate for the damage that follows the delay of medical care to successfully deal with this new challenge.

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