



COVID-19: Impact of sanitary containment on public road accidents in maxillofacial trauma.

Z. AZIZ, H. KABBAJ, Dr H. ELHADRI, Dr B. BENDALI, N. MANSOURI-HATTAB

Ibn Tofail hospital, Mohammed VI universital hospital center, Marrakech, Morocco.

Abstract:

In the pandemic due to the infection with the SARS-COV-2 coronavirus, Morocco had adopted containment to cope with this situation. The service of maxillofacial and aesthetic surgery of Marrakech noted a drastic decrease in the number of facial traumas linked to road accidents.

We conducted a retrospective and analytical study of 1525 patients admitted to the maxillofacial emergency department of Ibn Tofail hospital in Marrakech between February 16 and April 16, 2020 following accidents on public roads, then compared these data to the period preceding the medical isolation from February 16 to March 16, 2020.

Keywords: COVID 19, Road accidents, containment.

Introduction:

According to the general direction of national security, Morocco deplors each year 3,500 dead and more than 100,000 injured on the roads, an average of nine deaths and 320 injured per day [1].

In the maxillofacial emergencies of the Ibn Tofail hospital in Marrakech, public road accidents (PRA) constitute the main etiology of facial trauma, followed by assaults and brawls.

Since the start of the state of health emergency established by Morocco on March 16, 2020 to combat the spread of the pandemic linked to infection with the coronavirus SARS-COV-2, the maxillofacial and aesthetic surgery service in Marrakech noted a drastic decrease in the number of face trauma related to PRA.

The objective of this work is to analyse the epidemiological profile, the lesional aspect as well as the particularities of management of patients admitted to maxillofacial emergencies due to RA during the confinement period and to compare them with the period which precedes.

Few data are published in the literature apart from the figures available.

Materials and methods :

This is a retrospective and analytical study concerning 1525, patients admitted to the maxillofacial emergencies of the Ibn Tofail hospital in Marrakech between February 16 and April 16, 2020 due to PRA.

The data were collected from an emergency register where all admissions data is saved. We studied the epidemiological and clinical parameters, as well as the therapeutic management of these patients.

The analysis of these data was carried out comparatively between the period before confinement, from February 16 to March 16, 2020, and after confinement from March 16 to April 16, 2020.

Results:

Analysis of data collected from the maxillofacial emergency box register at the Ibn Tofail hospital in Marrakech over a period of two months between February 16 and April 16, 2020 showed an admission rate that went from 1,178 patients before March 16 to 345 patients 1 month later.

The percentage of patients who were victims of traffic accidents out of all the patients received was 29% either before or after confinement, but with a decrease in their number: from 343 patients 1 month before the confinement to 100 patients for the following month. (Figure 1)

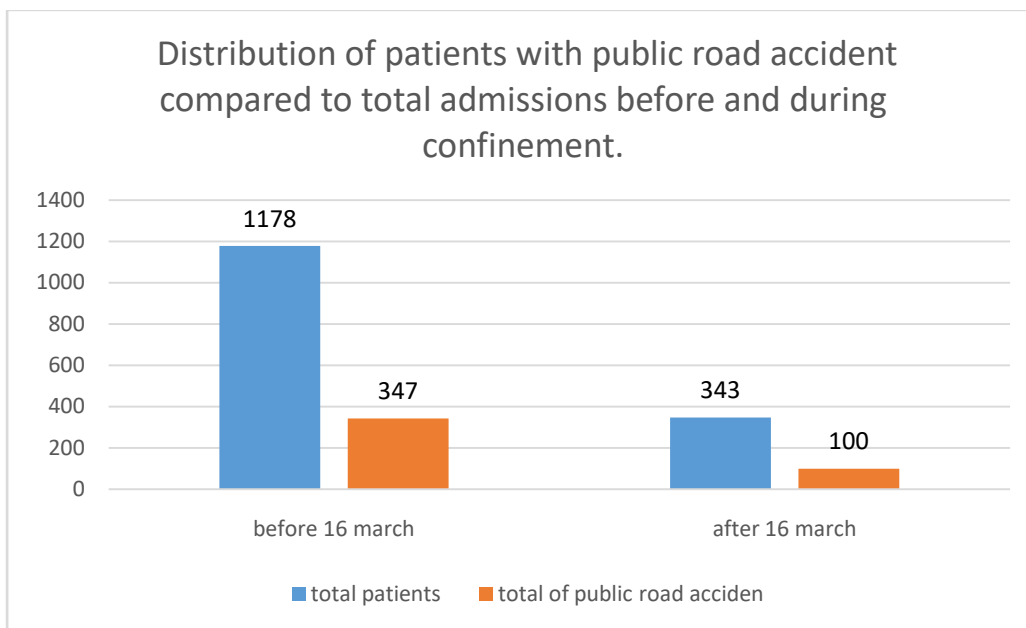


Figure 1: Distribution of patients who were victims of public road accident compared to total admissions before and during confinement.

Patients admitted to maxillofacial emergencies at Ibn Tofail Hospital are generally from the city of Marrakech or its regions. We report a high percentage of Marrakech residents 98%, followed by 1% from Essaouira and 1% from Safi.

There is a predominance of the male sex for victims of AVP, 92% before confinement and 82% during confinement, with a drop in the percentage in favor of women by 10% (Figure 2).

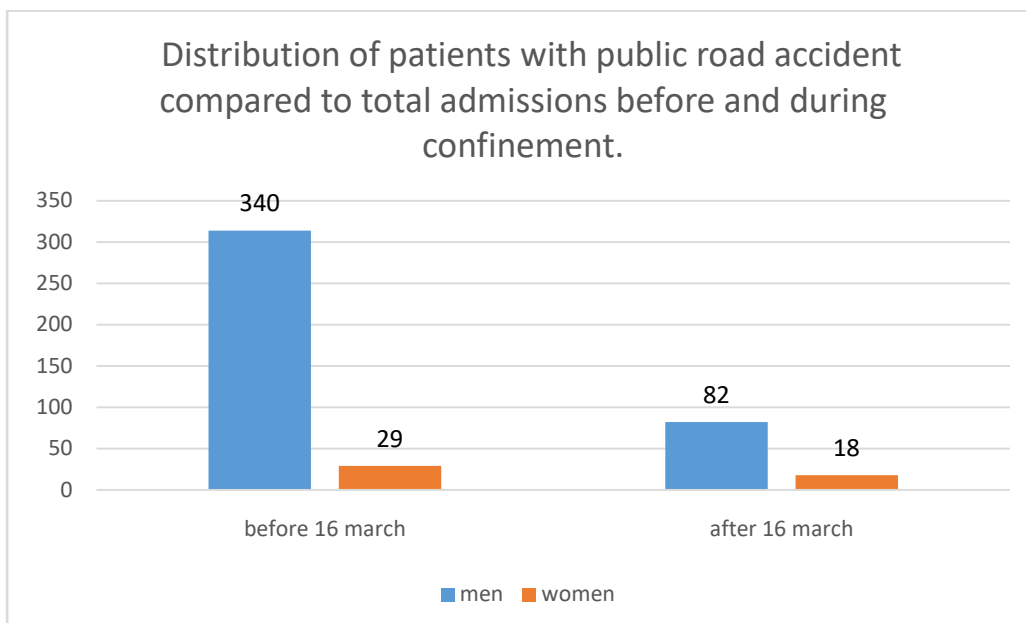


Figure 2: Gender distribution before and during confinement

Concerning the maxillofacial lesions, the profile was unchangeable, however an increase in the percentage of facial wounds was noted, going from 47% to 52% of admissions during the confinement period. (Image 1).



Image 1: public road accident's patient with transfixing upper lip sores before sutures (A: 1. extraoral view, 2. intraoral view) and after sutures (B: 1. extraoral view, 2. intraoral view).

It was noted that the overall percentage of facial fractures before and after confinement was equal, which were distributed with a reduction in cases of nasal fractures during the confinement period in favor of an increase in zygomatic and mandibular fractures which rose by 24% respectively 36% and 14% to 33% of cases. (Figures 3), (Images 2 and 3).

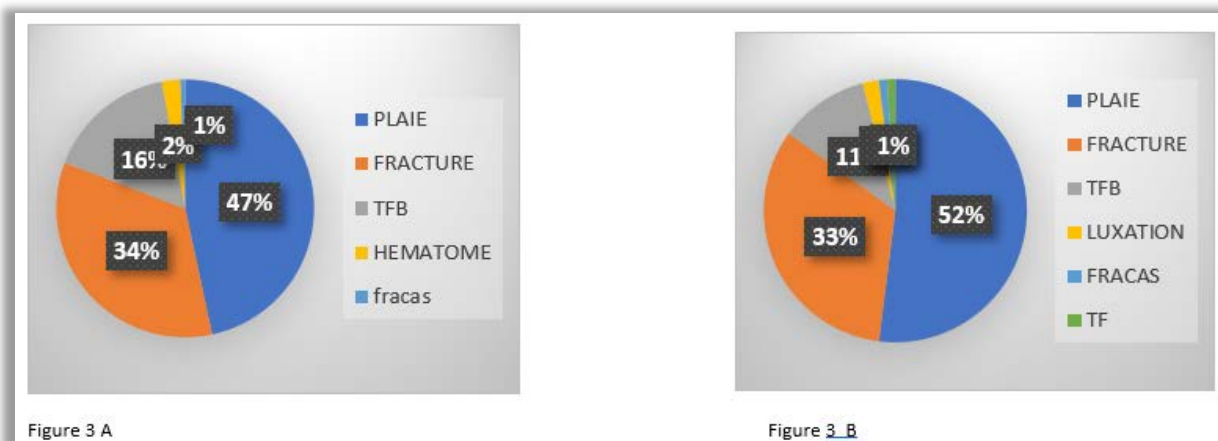


Figure 3: Distribution of cases according to the type of lesion before (A) and during confinement (B)



Image 2: Patient admitted to emergencies after a PVA during the confinement period with a left zygomatic fracture associated to a fracture of the right infra-orbital coping.

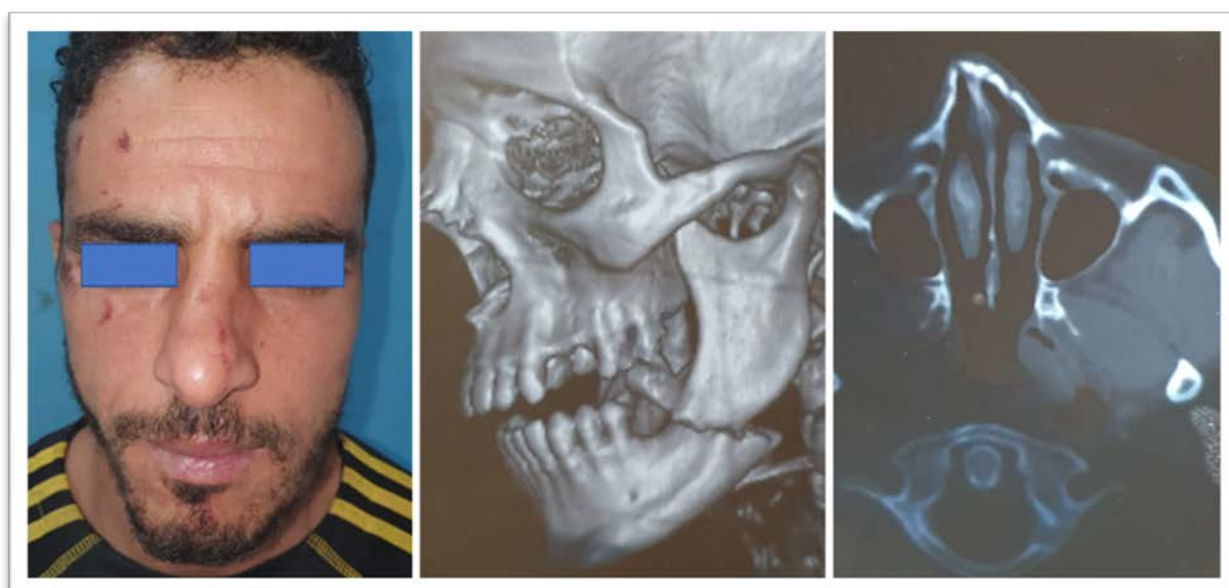


Image 3: Patient admitted after a public road accident during the confinement period with a fracture of the left mandibular angle associated with a fracture of the bones of the nose.

With regard to therapeutic management, patients are treated according to the same protocols for patients victims of PRA before confinement and after confinement. 160 patients had benefited from wound sutures in the emergency room, 30 received an orthopedic treatment of outpatient fractures, 33 patients were hospitalized for osteosynthesis in the operating room and 5 patients for orthopedic treatment in the operating room.

During this confinement period 42 patients benefited of wound sutures in the emergency room while 10 were sutured in the operating room.

As for fractures, 16 patients hospitalized for orthopedic treatment and 14 patients hospitalized for osteosynthesis.

However, during the COVID period, we favored the management of trauma in the operating room over the emergency room, i.e. 100% of orthopedic treatments were done in the operating room, and 20 percent of wounds were sutured in the operating room under local anaesthesia. (figure 4)

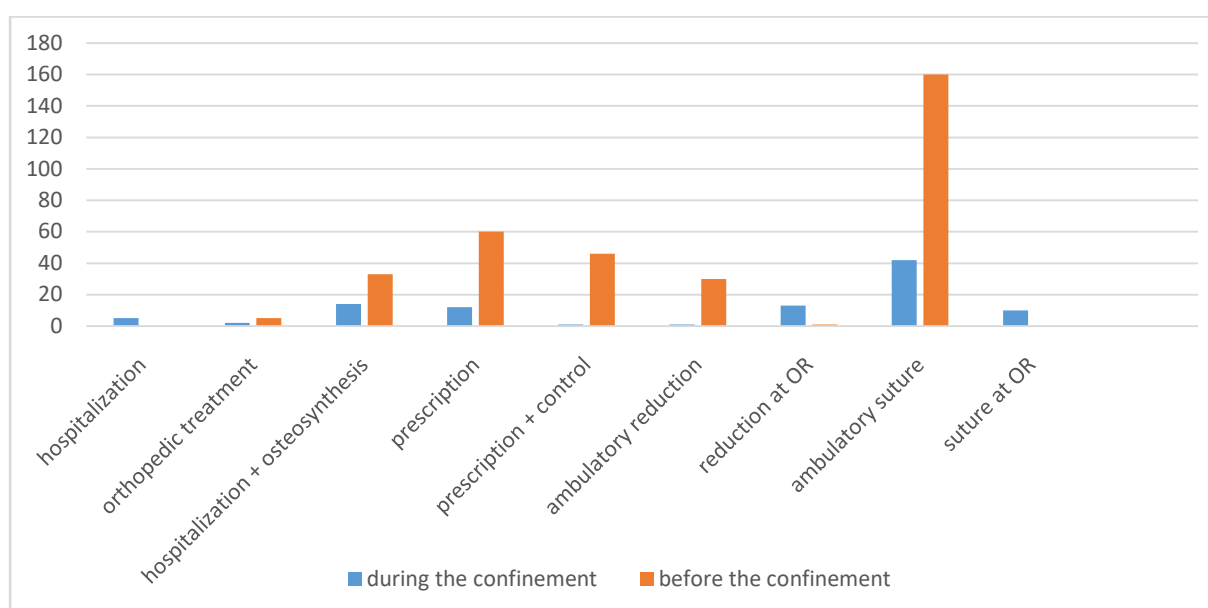


Figure 4: Comparative histogram of treatment before and during confinement.

Discussion:

The SARS-COV-2 virus, is responsible for a severe acute respiratory syndrome in the context of the so-called COVID-19 disease, and has a very high transmission character, the number of reproductions, R0 (number of cases directly generated by a case) is estimated between 2.2 and 2.68 [2.3].

Since the declaration of the pandemic by WHO on March 11, 2020, several countries have adopted the policy of containment and social distancing in order to flatten the progression curve of the pandemic. These measures include quarantine, travel restrictions, closings of schools, stadiums and sports halls, cinemas, theatres, restaurants and workplaces, where possible, encourage teleworking. Only places of public utility remained open. These measures have been associated with travel restrictions, whether between cities or within the same city [4].

Countries that have adopted these containment measures have seen the number of PVAs decrease due to traffic restrictions. According to the California Highway Patrol, the daily highway accident rate (450 collisions) has halved compared to the same period in 2019 (1,128 collisions) and the period before containment (1,056 collisions). At the same time, they reported a 50% drop in the rate of

death and bodily injury due to AVP [5]. In France, according to road safety, the accident rate decreased by 80% after the establishment of the state of health emergency compared to the year before [6]. Romanian police have reported a 31% drop in the traffic accident rate. Traffic restrictions imposed on Brazilian highways since the start of the new coronavirus pandemic resulted in a 28% drop in the number of accidents, as well as a 7% reduction in the number of deaths, between March and April 2020 [7].

Morocco had declared a state of health emergency from March 16, 2020. According to a report from the Moroccan Directorate General of National Security (DGSN), a total of 942 AVP was recorded between March 20 and April 12, 2020, compared to 4,616 in the same period of the previous year, a decrease of 79.59%. The serious injury rate decreased by 79.12% and the death rate by 65.52% [1].

This dramatic drop was also felt in the maxillofacial emergencies at Ibn Tofail Hospital in Marrakech. Indeed, we have collected a drop of 70.54% in the number of admissions (347) between March 16 and April 16, 2020 compared to the previous month (1178).

However, measures inherent in the COVID period were necessary in order to avoid congestion and protect patients and caregivers.

The seriousness of the lesions observed and the maintenance of activity combined with the risk of contamination of patients and nursing staff, during the COVID period, forced us to set up a more elaborate surgical management procedure for traumatized patients Maxillofacial: routing in a fast and uncontaminated circuit, rather favoring treatment in the operating room compared to the emergency room for certain lesions and in order to reduce the waiting time and exposure to contamination at the level of emergencies and duration of care.

Conclusion:

Since the start of the coronavirus disease pandemic, and after the sanitary containment, the rate of traffic accidents has dropped dramatically worldwide. Admissions from the maxillofacial surgery service of the Mohammed VI CHU in Marrakech were no exception and saw the rate of public road accidents in drop.

Key words: Public road accidents, COVID-19, sanitary containment, maxillofacial surgery.

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