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The COVID-19 pandemic and its impact on the demand for mental health care – the experience of a hospital centre in Portugal

Alves Tânia, Marques Melissa, Carvalho António

Department of Psychiatry, Centro Hospitalar do Médio Tejo (CHMT), Tomar, Portugal

Summary

INTRODUCTION: According to a survey carried out in 130 World Health Organization member countries, 93% of these countries revealed a disruption in their mental health care during the pandemic period. Our purpose was to study the impact of the SARS-CoV-2 pandemic on visits to the psychiatric emergency department of a hospital centre.

METHODS: A retrospective study was designed to characterise the visits to the emergency department during a lockdown period of 2020 in comparison with the same period of 2019. Sociodemographic aspects, assessment orders, diagnosis, suicide attempts and post-discharge destination were assessed.

RESULTS: There was a 54.7% reduction in the total number of visits to the psychiatric emergency department in 2020. No significant variation was found in the main municipalities of origin or in the age of the patients. The number of assessment orders was higher in 2020. The most common diagnostic classification was mood disorders (F30–F39, ICD-10 classification) in both years, with a decrease in cases by 70.5% in 2020. The rate of hospitalisations was maintained, with a trend to an increase of the compulsory hospitalisations.

CONCLUSIONS: Although there was a decrease in the attendance at the psychiatric emergency department associated with the pandemic, the response to serious clinical situations was guaranteed. Despite the risks associated with infection by SARS-CoV-2, it is essential to maintain the provision of mental health care.

Keywords: *pandemics, psychiatric emergency services, mental health*

Correspondence:
Dr Tânia Alves, MD, Department of Psychiatry, Centro Hospitalar do Médio Tejo(CHMT), Av. Maria de Lourdes de Mello Castro – Ap. 118, 2304-909 Tomar, Portugal, tp-valves100[at]gmail.com

Introduction

In December 2019, the first case of COVID-19 was reported and, within a few weeks, the virus spread globally, being responsible for a severe and potentially lethal pneumonia in many cases. Both the direct and indirect impacts of the SARS-CoV-2 virus on the central nervous system and mental health outcomes are still relatively uncertain [1]. However, psychiatric patients are expected to be particularly susceptible to the harmful effects of this pandemic [2].

Several studies have shown that patients with previous psychiatric disorders experienced exacerbation of their symptoms during the COVID-19 pandemic. In turn, studies regarding the general population revealed a sensation of worsening of their psychological well-being and worse scores on anxiety and depression scales compared with the pre-pandemic era [3].

Quarantine can lead to several psychiatric problems [4]. It can precipitate feelings of fear, anger, anxiety and panic about possible outcomes, as well as loneliness and guilt due to being away from family and friends [5]. On the other hand, patients with bipolar disorder and schizophrenia may have relapses due to instability of their follow-up and assessment of therapeutic adherence. For patients with substance abuse disorder, this period can be particularly critical also, since the reduced availability of these substances can precipitate severe withdrawal symptoms, which can be fatal if the emergency departments (EDs) are not adequately accessible [6]. This topic has to be considered, since some degree of disruption in the management of urgent psychiatric disorders has been reported. According to a survey carried out worldwide in 130 countries within the World Health Organization (WHO), 93% revealed some kind of disruption in their mental health services during the pandemic period, with 35% of countries reporting failures in the management of urgent psychiatric and neurological events [7].

We know that health services had to reorganise to respond to the pandemic, finding it difficult to maintain programmed assistance activities. Particularly, mental health departments opted to cancel non-urgent appointments, resorting to other instruments to attend the patients, such as telemedicine, which proved to be a useful resource [8]. The decrease in the programmed medical activity, associated with an eventual deterioration of the population's mental health status due to harmful effects of the pandemic, could imply a greater influx of patients to the psychiatric ED, due to depressive and anxiety symptoms. Besides, Portugal was already considered the major user per capita of emer-

gency facilities within the Organization for Economic Co-operation and Development (OECD) [9].

A study that analysed patient visits to the ED during the month of March 2020, revealed that there was a 48% reduction in the total number of emergency episodes compared with previous years, for all medical specialties in total [10]. Another study revealed that there was a 52.2% decrease in the demand for psychiatric emergency services in a psychiatry department during the COVID-19 pandemic [11].

The Psychiatric Department of Médio Tejo Hospital Centre (CHMT) in Portugal is located in a non-tertiary centre that serves a population of approximately 266,000 inhabitants, mainly living in rural areas and small cities. Our psychiatric ED is staffed by a team of 12 psychiatrists, 10 psychiatry residents and 24 nurses (who also assist other specialties of the ED), attending between 5500 and 6000 visits per year. For each day, one psychiatrist, one resident and two or three nurses provide assistance in this department from 9 a.m. to 9 p.m.

The aim of this work was to assess the impact of the first lockdown in Portugal during the SARS-CoV-2 pandemic on the visits to our psychiatric ED, namely on their total number, sociodemographic aspects, visits resulting from assessment orders, suicidal attempts and hospitalisations.

Materials and methods

Study design

This was a retrospective observational study to characterise the patient visits to the psychiatric ED during the period of the first state of emergency due to the SARS-CoV-2 pandemic in Portugal (18 March to 2 May 2020), compared with the same period of 2019. Our sample unit was visits to the psychiatric ED, and we considered that the same patient could have more than one visit to the ED. The observational period was between 18 March and 2 May 2020, compared with the same period in 2019, and all visits to the CHMT psychiatric ED were included. Patients' clinical files were consulted for data acquisition, and the following variables were collected:

- Age at the time of the visit to the ED.
- Gender: both male and female patients were included.
- Geographical origin: the location in which the patient lives at the time of the emergency episode.
- Assessment orders: the total number of visits in which patients were brought with an assessment order, issued by health authorities or security forces. An assessment order enables an authorised psychiatrist to examine a person without their consent, to determine whether they have mental illness and whether they need mental health treatment.
- Suicide attempts: the total number of visits in which suicide attempts were reported, as well as the method that was used.
- Diagnosis: classified according to the International Classification of Diseases, 10th revision (ICD-10) [12]. When no agreement was found between clinical records and computer coding, clinical records were preferred.
- Post-discharge destination: this variable was classified into two categories – admitted to hospital and discharged home. Among hospitalised patients, we assessed whether the admission was voluntary or compulsory, according to the Portuguese mental health law [13]. This law states that compulsory hospital admission results from a judicial decision regarding a person with a serious psychic anomaly and can only be determined under two circumstances:
  - Bearer of a serious psychic anomaly that creates a situation of danger for legal assets of relevant value, whether personal or of a third party, and who refuses the necessary medical treatment.
  - A person with severe psychic anomaly who does not have the necessary judgment to assess the meaning and scope of consent, and for whom the lack of treatment might lead to a severe deterioration of his or her condition.

Statistical analysis

Statistical analysis was performed using the software Microsoft® Excel and IBM® SPSS® Statistics, version 26. Categorical variables were described as absolute (n) and relative (%) frequencies, and continuous variables were reported using mean ± standard deviation (SD). For inferential statistics, Student's t-test for independent samples was used to compare continuous variables, since a normal distribution was confirmed by histogram, kurtosis and skewness assessment, as well as by performing Kolmogorov-Smirnov's test. For comparison between the total number of visits to the ED, a non-parametric binomial test was performed. For comparison of proportions a chi-square test was performed whenever Cochran rules; otherwise, Fisher's exact test was used. For variables with more than two categories, post-hoc tests were performed using a z test for two proportions with Bonferroni correction. A significance level of 0.05 was considered for all comparisons.

Results

A total of 158 visits to the psychiatric ED were registered in 2020, compared with 349 visits in 2019, corresponding to a reduction of 54.7% in 2020 ($p < 0.001$).

We found that in both years the predominant sex was female, with 225 female patients in 2019 (64.5%) vs 81 in 2020 (51.3%), with a statistically significant variation between 2019 and 2020 (table 1, $\chi^2(1) = 7.93$, $p = 0.005$, phi $= -0.13$).

In 2019, the age at the time of the visit to the ED was 48.8 ± 17.5 years, compared with 48.6 ± 19.7 years in 2020. No statistically significant difference between both time periods was found ($t(273.5) = 0.080$, $p = 0.93$).

Figure 1 shows the distribution of geographical origin of the patients visiting the psychiatric ED. Most patients arrived from Tomar (29.5% in 2019 vs 36.7% in 2020), Torres Novas (12.6% in 2019 vs 8.9% in 2020), Abrantes (11.7% in 2019 vs 9.5% in 2020) and Entroncamento (10.9% in 2019 vs 8.9% in 2020). No significant difference was identified between the two time periods regarding geographic distribution ($\chi^2(10) = 10.8$, $p = 0.38$).

The number of assessment orders was 11 (3.2%) in 2019 and 19 (12.0%) in 2020, which corresponds to a statistical-

ly significant increase of 72.7% ($\chi^2(1) = 15.3$, $p < 0.001$, phi = 0.17). Table 2 shows the distribution of assessment orders by diagnosis. In 2020 there was a greater variability in the diagnoses associated with assessment orders, as comparing with 2019. Of all patients brought to the ED with an assessment order in 2019, 9 (81.8%) were hospitalised, whereas in 2020, 12 (63.2%) were hospitalised (Fisher's exact test, p = 0.42).

Diagnoses were classified according to the ICD-10 and are shown in table 3. A statistically significant variation in diagnostic categories between the two years was observed ($\chi^2(9) = 29.9$, $p < 0.001$, Cramer's V = 0.24). Post-hoc assessment showed an increase in mental and behavioural disorders due to psychoactive substance use (F10–19), a decrease in mood disorders (F30–F39) and an increase in sleep disorders (G47).

The most frequent diagnostic category in both years was mood disorders (F30–F39), with 149 visits to the ED in 2019 (47.2%), compared with 44 visits in 2020 (27.9%), corresponding to a decrease of 70.5%. Mental and behavioural disorders due to psychoactive substance use (F10–F19) had an increase in the relative frequency, from 4.6% in 2019 to 9.5% in 2020.

There was a total of 22 (6.3%) suicide attempts in 2019 compared with 16 (10.1%) in 2020, with no statistically significant variation between the two years ($\chi^2(1) = 2.29$, p = 0.13). Considering these hospital visits, 10 patients (45.5%) were hospitalised in 2019 and 2 (12.5%) in 2020, representing a significant decrease ($\chi^2(1) = 4.66$, p = 0.031). The most common method of suicide attempt was prescribed drug overdose for both years (90.9% in 2019 and 62.5% in 2020). Other methods included drowning

Table 1: Sociodemographic and clinical characteristics of patients visiting the psychiatry emergency department between 18 March and 2 May2020 and the same period of 2019.

Feature	2019	2020	Total	Test statistic	p-value
Number of visits	349	158	507	N/A	<0.001*
Gender, n (%)					
Female	225 (64.5%)	81 (51.3%)	306 (60.4%)	$\chi^2(1) = 7.93$†	0.005†
Male	124 (35.5%)	77 (48.7%)	201 (39.6%)		
Age (years), mean ± SD	48.8 ± 17.5	48.6 ± 19.7	48.7 ± 18.2	t(273.5) = 0.080‡	0.93‡
Assessment orders, n (%)	11 (3.2%)	19 (12.0%)	30 (5.9%)	$\chi^2(1) = 15.3$†	<0.001†
Hospitalisations, n (%)	57 (16.3%)	28 (17.7%)	85 (16.8%)	$\chi^2(1) = 0.15$†	0.70†
Compulsory hospitalisations, n (% of all hospitalisations)	9 (15.8%)	9 (33.3%)	18 (21.4%)	$\chi^2(1) = 3.35$†	0.067†
Suicide attempts, n (%)	22 (6.3%)	16 (10.1%)	38 (7.5%)	$\chi^2(1) = 2.29$†	0.13†

N/A = not applicable; SD = standard deviation * Non-parametric binomial test; † chi-square test; ‡ Student's t-test for independent samples.

Figure 1: Distribution of the geographical origin of patients visiting the psychiatric emergence department. No significant difference was identified between 2019 and 2020.

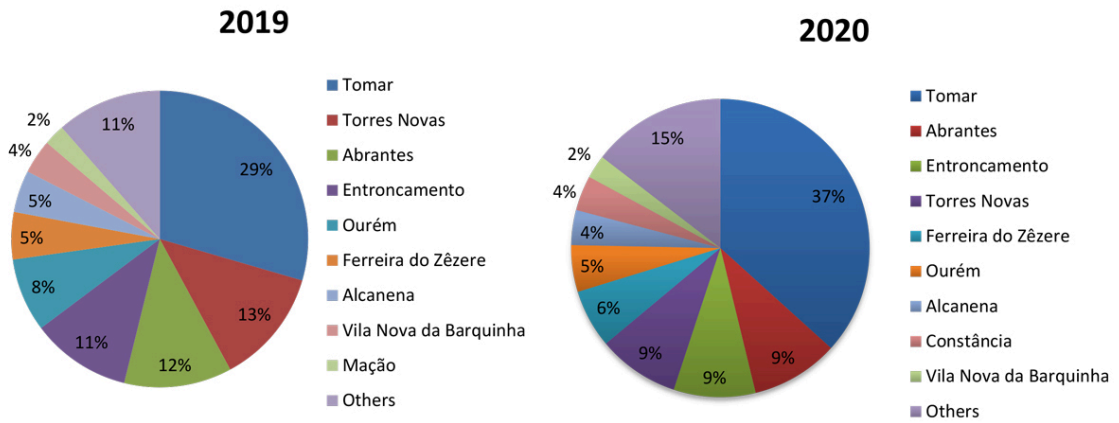

Table 2: Distribution of diagnosis per year for patients visiting the emergency department with assessment orders.

2019		2020	
Diagnosis	**%**	**Diagnosis**	**%**
(F10) Mental and behavioral disorders due to use of alcohol	18.2%	(F19) Mental and behavioral disorders due to multiple drug use and use of other psychoactive substances	5.3%
(F20) Schizophrenia	36.4%	(F20) Schizophrenia	26.3%
(F29) Unspecified nonorganic psychosis	18.2%	(F25) Schizoaffective disorders	5.3%
(F33) Recurrent depressive disorder	9.1%	(F29) Unspecified nonorganic psychosis	21.0%
(F70) Mild mental retardation	18.2%	(F31) Bipolar disorder	26.3%
		(F32) Depressive episode	5.3%
		(F60) Specific personality disorders	5.3%
		(F71) Moderate mental retardation	5.3%

(4.5%) and inhalation of toxic gas (4.5%) in 2019, and being run over by a vehicle (6.3%), suffocation (6.3%), firearm (6.3%), jumping from height (6.3%) and using pesticides and cleaning products (12.5%) in 2020. The diagnostic distribution across the time periods for these patients are summarised in table 4.

The rate of hospitalisations in consequence of visits to the psychiatry ED did not significantly change between 2019 and 2020 (16.3% vs 17.7%, $\chi^2(1) = 0.15$, $p = 0.70$). Of these admissions to the psychiatry ward, 15.8% were compulsory in 2019, comparing with 33.3% in 2020, but with no significant difference ($\chi^2(1) = 3.35$, $p = 0.067$).

Table 3: Diagnosis distribution per year regarding patient visits to the psychiatry emergency department between 18 March and 2 May 2020 and the same period of 2019.

Diagnosis	2019	2020
(F00–F09) Organic, including symptomatic, mental disorders, n (%)	23 (6.6%)	15 (9.5%)
(F03) Unspecified dementia	12	10
(F05) Delirium, not induced by alcohol and other psychoactive substances	10	4
(F07) Personality and behavioural disorder due to brain disease, damage and dysfunction	1	1
(F10–F19) Mental and behavioural disorders due to psychoactive substance use*, n (%)	16 (4.6%)*	15 (9.5%)*
(F10) Mental and behavioural disorders due to use of alcohol	9	5
(F11) Mental and behavioural disorders due to use of opioids	2	2
(F13) Mental and behavioural disorders due to use of sedatives or hypnotics	1	3
(F14) Mental and behavioural disorders due to use of cocaine	0	2
(F19) Mental and behavioural disorders due to multiple drug use and use of other psychoactive substances	4	3
(F20–F29) Schizophrenia, schizotypal and delusional disorders, n (%)	47 (13.5%)	27 (17.1%)
(F20) Schizophrenia	19	13
(F22) Persistent delusional disorders	1	0
(F25) Schizoaffective disorders	12	8
(F29) Unspecified nonorganic psychosis	15	6
(F30–F39) Mood [affective] disorders*, n (%)	149 (47.2%)*	44 (27.9%)*
(F31) Bipolar affective disorder	34	9
(F32) Depressive episode	39	7
(F33) Recurrent depressive disorder	64	28
(F34) Persistent mood [affective] disorders	12	0
(F40–F48) Neurotic, stress-related and somatoform disorders, n (%)	65 (18.6%)	25 (15.8%)
(F40) Phobic anxiety disorders	3	0
(F41) Other anxiety disorders	23	17
(F42) Obsessive - compulsive disorder	1	0
(F43) Reaction to severe stress, and adjustment disorders	36	8
(F45) Somatoform disorders	2	0
(F50–F59) Behavioural syndromes associated with physiological disturbances and physical factors, n (%)	0 (0.0%)	1 (0.6%)
(F50) Eating disorders	0	1
(F60–F69) Disorders of adult personality and behaviour, n (%)	24 (6.9%)	9 (5.7%)
(F60) Specific personality disorders	13	5
(F63) Habit and impulse disorders	5	2
(F69) Unspecified disorder of adult personality and behaviour	6	2
(F70–F79) Mental retardation, n (%)	13 (3.7%)	3 (1.9%)
(F70) Mild mental retardation	13	1
(F71) Moderate mental retardation	0	2
(G47) Sleep Disorders*, n (%)	5 (1.4%)*	7 (4.4%)*
Non-psychiatric diagnosis*, n (%)	7 (2.0%)*	12 (7.6%)*

Chi-Square test for comparison of the main diagnostic groups (in bold): $\chi^2(9) = 29.9$, $p < 0.001$. * $p < 0.050$ for post-hoc comparison using z-test for proportions with Bonferroni correction.

Table 4: Distribution of diagnosis per year for patients visiting the emergency department after a suicide attempt.

2019		2020	
Diagnosis	**%**	**Diagnosis**	**%**
(F13) Mental and behavioural disorders due to use of sedatives or hypnotics	4.5%	(F07) Personality and behavioural disorder due to brain disease, damage and dysfunction	6.3%
(F31) Bipolar disorder	9.1%	(F10) Mental and behavioural disorders due to use of alcohol	12.5%
(F32) Depressive episode	18.2%	(F13) Mental and behavioural disorders due to use of sedatives or hypnotics	12.5%
(F33) Recurrent depressive disorder	22.7%	(F32) Depressive episode	6.3%
(F34) Persistent mood [affective] disorders	4.5%	(F33) Recurrent depressive disorder	12.5%
(F43) Reaction to severe stress, and adjustment disorders	13.6%	(F43) Reaction to severe stress, and adjustment disorders	12.5%
(F60) Specific personality disorders	18.2%	(F60) Specific personality disorders	12.5%
(F69) Unspecified disorder of adult personality and behaviour	4.5%	(F63) Habit and impulse disorders	12.5%
(F70) Mild mental retardation	4.5%	(F69) Unspecified disorder of adult personality and behaviour	6.3%
		Other non-psychiatric	6.3%

Discussion

One key observation emerges from this study. The SARS-CoV-2 pandemic influenced access to the psychiatric ED.

We initially hypothesised that there would be an increase in the demand for the psychiatric ED due to the negative impact of the pandemic on mental health. However, in our study there was in fact a drop of 54.7% in the total number of emergency episodes in 2020 compared with the same period in the previous year. This result is in accordance with the study done by Gonçalves-Pinho M et al. [11], which verified a 52.2% decrease in psychiatric ED visits during the pandemic. It is also in accordance with the study done by Santana R et al. [10], which revealed a 45% decrease in visits to the ED for all causes in March 2020, when compared with the corresponding period in 2019. Possible reasons for this decrease in the emergency visits could be: fear of being infected by SARS-CoV-2 while travelling to the hospitals or inside these facilities, avoidance of public transportation, being afraid of not complying with the lockdown, and less demand from patients in less urgent or non-urgent situations.

We found that in both years the predominant sex was female, and age was similar for both periods. These results are in accordance with the study of Gonçalves-Pinho M et al. [11], who also found a predominance of female patients in their emergency episodes, and a similar age when visiting the ED. This can be explained by the fact that the majority of Portuguese psychiatric patients are female, and are among the youngest age categories, as found in the study conducted by Caldas de Almeida JM et al. [14] For geographic origin, no significant variation between 2019 and 2020 was observed. We can state that the decrease in accessibility to the psychiatric ED associated with the pandemic (whether real or perceived) affected equally all geographical locations.

Regarding the issue of assessment orders, we can say that the response levels were not only maintained, but actually surpassed those observed in 2019. The response does not appear to be affected by the pandemic. Interestingly, some countries are starting to worry about whether the SARS-CoV-2 pandemic could affect this response and, for example, Northern Ireland has already changed the law to facilitate these procedures [15]. Despite the increase in the number of patients brought with assessment orders, a lower percentage of these were hospitalised in 2020 than in 2019. That leads us to suppose that in 2020 more patients with less serious problems were brought by this route, which could be justified by the fact that the authorities devoted more time to these cases during the pandemic owing to the reduction in their remaining workload.

The most frequent diagnostic category in both years was mood disorders (F30–F39), but with a decrease of 70.5% in 2020. These findings are in accordance with the study of Gonçalves-Pinho M et al. [11], which revealed that visits due to mood disorders were the most affected by the lockdown, with a decrease of 68.3% in emergency admissions.

Another category that varied significantly was mental and behavioural disorders due to psychoactive substance use (F10–F19), which had an increase from 4.6% in 2019 to 9.5% in 2020. In spite of that, the number of diagnosis in this category was still relatively low. We must take into account that there is a chance that a substantial number of people suffering from substance abuse did not seek help in psychiatric departments. There are rising concerns about substance abuse during the COVID-19 pandemic [16]. Also, the rate of sleep disorders was also higher during the lockdown period, as expected because of feelings of uncertainty and social isolation. Interestingly, the rates of anxiety disorders did not vary significantly.

This pandemic, particularly during the lockdown, led to social isolation from family, friends and also from co-workers. Unemployment rates increased and some businesses were on hold, which led to economic difficulties. In spite of that, the rate of suicide attempts did not increase significantly in our emergency admissions. However, we examined the time period of the first lockdown, corresponding to the beginning of the pandemic in Portugal, which might be too soon to draw conclusions about the evolution of suicide attempts during the pandemic. Nevertheless, a reasonably consistent picture is beginning to emerge from high income countries, in which reports suggest either no rise in suicide rates or a fall in the early months of the pandemic. The picture is much less clear in low income countries, where reliable sources of information are lacking [17].

The rate of hospitalisations did not vary significantly. This type of response was expected to be maintained. Regarding compulsory admissions to the Psychiatric ward, there seemed to be an increase in 2020, which was, however, not significant. A possible explanation for this apparent increase is that patients with states that did not require compulsory hospitalisations also did not seek emergency care as much as in previous years.

This study has some limitations, such as the fact that we are working with a small sample (507 patients in total), who may not be representative of the general population. Another topic is the fact that we only evaluated one dimension of the psychiatric department, the emergency psychiatric department. We were unable to conclude whether there was an overall increase or decrease in the demand for mental health care. In order to answer that question, we would have to study what happened in the other sections of the psychiatric department, inpatient and outpatient. We could also ask people who stayed at home about how they felt about their mental health, and how they dealt with their struggles. There are some studies based on questionnaires, such as the study of Pierce et al., conducted in the United Kingdom, that concluded that mental health had deteriorated compared with pre-COVID-19 trends [18].

In this study, we did not analyse which of the clinical cases observed in the ED in 2020 were directly or indirectly related to the COVID-19 pandemic, which could be an interesting topic of research. For example, some patients could be affected by the fear of being infected by the virus or of infecting other people, or depressed because of the imposed social isolation.

Conclusions

Our results are in line with other studies confirming the trend towards a decrease of approximately 50% in the psychiatric ED visits during a pandemic.

A profile of the typical patient who would visit this psychiatric ED during the lockdown would be a middle-aged woman who suffers from a mood disorder.

Despite the decrease in the general attendance to the psychiatric ED associated with the pandemic, we found that the need and response to serious clinical situations remained, both due to maintained issuing of assessment orders and rate of hospitalisations, namely the compulsory hospitalisations. Despite the risks associated with infection by SARS-CoV-2, it is essential to maintain the provision of mental health care, paying particular attention to serious situations.

Disclosure statement

No financial support and no other potential conflict of interest relevant to this article was reported.

Data Confidentiality: The authors declare that they have followed their institution's protocols regarding the publication of patient data.

Protection of People and Animals: The authors declare that the procedures followed were in accordance with the regulations established by the heads of the Clinical and Ethical Investigation Commission and in accordance with the Helsinki Declaration of the World Medical Association.

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