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Repercussions of the COVID-19 pandemic in the emergency department of Gynecology and Obstetrics at a referral hospital in Portugal

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INTRODUCTION

Coronavirus Disease 2019 (COVID-19) is caused by a novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Since December 2019 it has spread worldwide when a number of patients with pneumonia of unknown aetiology emerged in Wuhan City, Hubei Province, Central China. Consequently, on March 11th, 2020, it was declared as a pandemic by the World Health Organization [1]. In Portugal, the first case was reported on 2nd March

ABSTRACT

Objective. COVID-19 has spread worldwide and Portugal decreed the State of Emergency on March 18th, 2020. During this period, the population was encouraged to stay at home. Still, there were no restrictions on access to health care. Therefore, we aimed to compare the major causes for attending the Obstetrics and Gynaecology Emergency Department (ED) from a referral centre (Maternidade Dr. Alfredo da Costa, in Lisbon).

Materials and Methods. Several variables were collected and compared between two periods of time: from 19th March to 2nd April 2020 and the same period of 2019.

Results. During the COVID-19 pandemic period, 49.4% fewer patients visited the ED. We observed a higher number of urgent patients and hospitalization rate than previous year.

Conclusions. We experienced a reduction number of admissions to the Obstetrics and Gynaecology ED, but apparently the severity of cases that visited the ED increased.

and the National Government decreed a State of Emergency on March 18th, 2020. On April 2nd, the State of Emergency was renewed and ended on May 2nd. During this period, the population was encouraged to stay at home; however, there were no restrictions on access to health care [2]. Nevertheless, most non-urgent activities were suspended during this period and different services had to be reorganized to shift some personnel to departments in need, even in the ED, in order to receive COVID patients.

The main purpose of this study was to compare major causes of presentation to the Obstetrics and Gynaecology ED. Also, we compared the number and demographic characteristics of patients attending it, between March 19th and April 2nd, 2020, with the same period of 2019.

MATERIALS AND METHODS

This is an observational, retrospective and single-centre study focusing on the use of the Obstetrics and Gynaecology ED at Maternidade Dr. Alfredo da Costa during the COVID-19 pandemic. Maternidade Dr. Alfredo da Costa is the maternity of the Central Lisbon Hospital Centre (CHULC), placed in Lisbon, Portugal, and considered a referential centre with a differentiated perinatal support, where Obstetrics and Gynaecology ED is located. The maternity was identified as one of the COVID-19 referral centres for pregnant women with creation of new COVID dedicated medical wards. Our study was approved by the institutional ethics committee.

Data were collected from institutional clinical software of ED from March 19th to April 2nd, 2020 and also from the same period of the previous year. Clinical severity under the Manchester triage system (MTS), age, parity, complaints that motivated the visit to the ED and need for hospitalization were the considered variables. Patients were allocated in one of two groups: pregnant *vs* non-pregnant.

International ethical standards were used on the elaboration of this study.

Statistical analysis

Statistical analysis, including descriptive and bivariate analyses, was performed using IBM SPSS® 23.0 version. Normal distribution was checked using Shapiro-Wilk or Skewness and Kurtosis. Concerning bivariate analysis, Chi-Square statistic and independent-samples T-test were used. All reported P-values are two-tailed, with a P-value of 0.05 indicating statistical significance. Categorical variables were presented as frequencies and percentages and continuous variables as means and standard deviations.

RESULTS

A total of 1413 patients were admitted to our department on the aforementioned dates, respectively 938

in 2019 and 475 in 2020, which means that during the COVID-19 pandemic period, 49.4% fewer patients visited the Obstetrics and Gynaecology ED, compared with the same period of the previous year. The mean age of total patients in 2019 was 32.40 ± 9.75 years *vs* 31.65 ± 7.64 in 2020, without statistical significance ($p = 0.116$). Considering clinical severity grade under the MTS, when we compare the urgent patient group (identified with orange and yellow bracelets) with non-urgent group (identified with green and blue bracelets) in the two periods (25.40% and 74.60% in 2019 *vs* 27.80% and 72.80% in 2020, respectively), a statistically significant difference was found ($p = 0.037$). Regarding the hospitalization rate, it was higher during the COVID-19 pandemic than in homologous period of 2019 (16.3% *vs* 5.7%; $p < 0.001$). Pregnant women were the more frequent group on Obstetrics and Gynaecology ED (76.50% in 2019 *vs* 83.2% in 2020; $p = 0.004$). In the pregnant group, the mean gestational age was 24.26 ± 13.26 in 2019 *vs* 26.55 ± 13.47 in 2020 ($p = 0.007$) and more than 50% were nulliparous women in both analysed periods ($p = 1.000$), as mentioned in **Table 1**. Pregnant women addressed more to the ED in the third trimester of pregnancy in both years (50.4% *vs* 58.7%). During COVID-19 time there was a significant increase compared to the year before ($p = 0.008$).

The main cause of presentation to the ED in the pregnant group is shown in **Table 2**. Painful contractions were the most common reason of ED admission in 2020 ($n = 95$; 24.1% *vs* $n = 136$; 18.9% in 2019) with statistical significance ($p = 0.05$) and vaginal bleeding was the main reason in the 2019 period time ($n = 152$; 21.2% *vs* $n = 74$; 18.7%; $p > 0.05$). Pelvic pain (not related to contractions) had a lower incidence during the COVID-19 pandemic (9.1% *vs* 15.3%, $p = 0.003$). On the contrary, suspicion of amniotic fluid leak had a higher incidence in current year (13.7% *vs* 8.1% in 2019, $p = 0.004$). The rate of hospitalized women in the obstetric group was 21.2% ($n = 152$) in 2019 and 30.6% ($n = 121$) in 2020 ($p = 0.001$). Patients hospitalized in labour area totalized 74.3% in 2019 and 76.9% in 2020 ($p = 0.673$). One of the hospitalized pregnant-woman had a diagnosis of preterm premature rupture of membranes at 30 weeks' gestation and she was infected with SARS-CoV-2. In this case, the patient was hospitalized in the new COVID medical ward for specialized care and precautions. Moreover, a minority of patients attended the emergency service having gynaecological or postpartum complaints (non-pregnant group). In this group, vaginal bleeding and pelvic pain were the most common pre-

Table 1. Characteristics of ED visits.

| Pregnant group | 2019 (n = 718) | 2020 (n = 395) | P-value ^a |
|--|-------------------|-------------------|----------------------|
| Age (years) | 31.09 ± 6.470 | 30.85 ± 6.448 | 0.543 |
| Gestational age of pregnant women (weeks) | 24.25 ± 13.26 | 26,58 ± 13.47 | 0.007 |
| 1 st trimester (≤ 14 weeks) – n (%) | 227 (31.6) | 113 (20.6) | 0.308 |
| 2 nd trimester (14-26 weeks) – n (%) | 129 (18.0) | 50 (12.7) | 0.021 |
| 3 rd trimester (> 26 weeks) – n (%) | 368 (50.4) | 232 (58.7) | 0.008 |
| Parity | | | |
| Nulliparous – n (%) | 372 (51.8) | 205 (51.9) | 1.000 |
| Primiparous – n (%) | 207 (28.8) | 128 (32.4) | 0.220 |
| Multiparous – n (%) | 139 (19.4) | 62 (15.7) | 0.143 |
| Manchester triage system | | | |
| Urgent group – n (%) | 197 (27.4) | 134 (33.9) | 0.028 |
| Hospitalization – n (%) | 152 (21.2) | 121 (30.6) | 0.001 |
| Hospitalized patient destination | | | |
| Labor area – n (%) | 113 (74.3) | 93 (76.0) | 0.673 |
| Maternal-fetal ward – n (%) | 38 (25.0) | 26 (21.5) | 0.566 |
| Gynecological ward – n (%) | 1 (0.7) | 2 (1.7) | 0.586 |

^aIndependent-samples T-Test for continuous variables; Pearson chi-squared test for categorical variables.

sentation symptoms in the ED during the two analysed periods (n = 77; 35% in 2019 vs n = 24; 30% in 2020; p > 0.05 and n = 38; 17.3% in 2019 vs n = 13; 16.3% in 2020; p > 0.05, respectively). During the COVID-19 pandemic, the incidence of amenorrhoea (without diagnosis of pregnancy) was higher than in the same period of 2019 (n = 6; 7.5% vs n = 2; 0.9%; p = 0.005). The remaining complaints are described in **Table 3**. In non-pregnant group, the number of hospitalized patients was similar (0.5% in 2019 and 1.3% in 2020; p > 0.05).

DISCUSSION

Recommendations from the national Government alerted people to remain at home during the presumably worst time of the COVID-19 pandemic [2]. This contributed to a significant decrease in the health care services, specifically Obstetrics and Gynaecology ED, as shown in our study. Recent studies regarding the COVID-19 pandemic and other specialties also support our results concerning their ED [3].

Based on literature, studies elucidate that women frequently use the ED during pregnancy, including visits for non-urgent indications [4]. Moreover, Portugal's Obstetrics and Gynaecology ED health system offers free access for pregnant women [5] which contributes to an increasing number of admissions. We consider that this is one of the reasons that explains why there is a significantly different percentage of pregnant vs non-pregnant women in our service. Ma-

ternal anxiety, specially related to uncertainty during the COVID-19 pandemic, could also be an important part of this reality. Surprisingly, given the services reorganization and suspension of non-urgent activities, in order to reduce the virus circulation among the population [6], we demonstrate a reduction of admitted patients with gynaecological complaints that could have their health care postponed. It should be noted that there were surgical emergencies, in particular ovarian torsion or ectopic pregnancy, that could not be delayed. Thereby, a COVID-19 testing and risk assessment were advised depending on the degree of the urgency [6].

On the other hand, and based on the Manchester triage system, we demonstrate a larger and significant affluence to the ED of urgent patients (orange and yellow bracelets) and an increase of the hospitalization rate during the COVID period occurred, including in the pregnant group. We consider that the populations' reluctance to address the ED during this contingency period contributed to a reduction in the ED attendance for mild symptoms and a search for specialized help only with more severe symptoms at later stages of disease.

Pregnant women used more often the ED during the third trimester, which is also described by other authors [7]. It probably occurs because during the last weeks of pregnancy women experience some symptoms that can be related with starting of labour and all patients came to the ED at least once, to deliver. Experiencing other pregnancies could change the

Table 2. Causes of presentation to the ED.

| Pregnant group | | | |
|----------------------------------|-------------------|-------------------|----------------------------|
| | 2019 n (%) | 2020 n (%) | P-value^a |
| Vaginal bleeding | 152 (21.2) | 74 (18.7) | 0.351 |
| Pelvic pain | 110 (15.3) | 36 (9.1) | 0.003 |
| Painful contraction | 136 (18.9) | 95 (24.1) | 0.053 |
| Suspected of amniotic fluid leak | 58 (8.1) | 54 (13.7) | 0.004 |
| Decreased fetal movements | 28 (3.9) | 12 (3.0) | 0.565 |
| High blood pressure | 28 (3.9) | 13 (3.3) | 0.740 |
| Vulvar pain | 0 (0) | 2 (0.5) | 0.126 |
| Vaginal discharge | 21 (2.9) | 4 (1.0) | 0.003 |
| Routine antenatal control | 56 (7.8) | 33 (8.4) | 0.731 |
| Gastrointestinal symptoms | 19 (2.6) | 12 (3.0) | 0.707 |
| Genitourinary symptoms | 23 (3.2) | 12 (4.0) | 1.000 |
| Amenorrhea | 32 (4.5) | 19 (4.8) | 0.767 |
| Others | 55 (7.7) | 28 (7.1) | 0.812 |
| Total | 718 (100) | 395 (100) | |

^aPearson chi-squared test.

Table 3. Causes of presentation to the ED.

| Non-pregnant group | | | |
|----------------------------------|-------------------|-------------------|----------------------------|
| | 2019 n (%) | 2020 n (%) | P-value^a |
| Vaginal bleeding | 77 (35.0) | 24 (30.0) | 0.490 |
| Pelvic pain | 38 (17.3) | 13 (16.3) | 1.000 |
| Vulvar pain | 17 (7.7) | 3 (3.0) | 0.299 |
| Vaginal discharge | 26 (11.8) | 10 (12.5) | 0.843 |
| Genitourinary symptoms | 19 (8.6) | 7 (8.8) | 1.000 |
| Amenorrhea | 2 (0.9) | 6 (7.5) | 0.005 |
| Mastalgia | 11 (5) | 8 (10) | 0.177 |
| High blood pressure (postpartum) | 2 (0.9) | 0 (0) | 1.000 |
| Routine postpartum control | 6 (2.7) | 5 (6.3) | 0.170 |
| Others | 22 (10) | 4 (5) | 0.246 |
| Total | 220 (100) | 80 (100) | |

^aPearson chi-squared test.

pattern of coming to the ED, so we presume that multiparas would understand better the complaints that occur during pregnancy. In our study, a lower inflow of multiparas to the ED was observed, without statistical significance, though. Possibly the sample size has not been large enough to find these differences. Regarding the causes for attendance at the ED among the pregnant group, we demonstrate that there was a big number of patients with important complaints, such as painful contractions and suspicion of amniotic fluid loss, during the COVID period. Furthermore, we found a significant reduction in other complains of pregnant women, such as vaginal discharge, considered less serious [8]. Fewer pregnant women accessed the ED with pelvic pain during the COVID period time. This nonspecific symptom can occur throughout pregnancy, with several causes and severity differences, so it

cannot be undervalued. We didn't observe a significant difference in the remaining complaints. In non-pregnant group, another non-urgent indication [7], amenorrhea (without pregnancy diagnosis), was a more frequent symptom during 2020 than in 2019. This could be related to the confinement at home, so it could be easier to access to the ED for the pregnancy detection and reassurance of women, instead of buying themselves a pregnancy test. The authors of this study recognize an important limitation related to its retrospective nature and to the fact that only the first two weeks of the state of emergency in Portugal have been studied. We decided to analyse this period of time, given the current relevance of the topic and as it was an adaptation period with important changes in hospital services. The world countries dealt with the pandemic in different ways due to its novelty and to

the lack of unanimous consent on the best health-care management strategies.

CONCLUSIONS

The pandemic COVID-19 caught the world and especially the health care off guard and it was necessary to restructure health services, including the ED, to create new dedicated COVID-19 areas. It was supposed that urgent situations continued to be done, contrarily to different non-urgent care that was postponed. Even so, the number of admissions to the Obstetrics and Gynaecology ED decreased. On the contrary, it seems that the severity of the cases that recurred increased. The consequences of COVID-19 are yet to be determined and it would be interesting additional research to prolong observations, including a longer interval.

COMPLIANCE WITH ETHICAL STANDARD

Authors contribution

All authors contributed equally to the work.

Fundings

None.

Study registration

N/A

Disclosure of interests

The authors declare that they have no conflict of interests.

Ethical approval

This study obtained ethical approval by Ethics Committee from Centro Hospitalar Universitário Lisboa Central, Lisbon, Portugal (protocol number 919/2020 - 02/26/2021).

Informed consent

Exemption from informed consent were requested, with the justification that the study was important

and had be carried out in a short period of time, with an exclusively investigative purpose. Only pseudonymized data were used. As this was an exceptional situation, the general rule of obligatoriness to obtain informed consent, which is also legally provided in article 06, n° 1 d) of law n° 21/2014 of April 16, it becomed necessary to justify that request.

Data sharing

Data are available under reasonable request to the corresponding author.

REFERENCES

1. WHO. Novel Coronavirus. Available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>. Accessed on April 01, 2020.
2. <https://www.portugal.gov.pt/pt/gc22>. Accessed on March 07, 2022.
3. Madanelo M, Ferreira C, Nunes-Carneiro D, Pinto A, Rocha MA, Correia J, et al. The impact of the coronavirus disease 2019 pandemic on the utilisation of emergency urological services. *BJU Int.* 2020;126(2):256-8. doi: 10.1111/bju.15109.
4. Kilfoyle KA, Vrees R, Raker CA, Matteson KA. Nonurgent and urgent emergency department use during pregnancy: an observational study. *Am J Obstet Gynecol.* 2017;216(2):181.e1-181.e7. doi: 10.1016/j.ajog.2016.10.013.
5. Decreto Lei n° 113/2011 de 29 de Novembro de 2011, from Ministério da Saúde. *Diário da República: I série, N° 229*. Available at www.dre.pt. Accessed on July 13, 2020.
6. Chiofalo B, Baiocco E, Mancini E, Vocaturo G, Cutillo G, Vincenzoni C, et al. Practical recommendations for gynecologic surgery during the COVID-19 pandemic. *Int J Gynaecol Obstet.* 2020;150(2):146-150. doi: 10.1002/ijgo.13248.
7. Ferriols Pérez E, Kanjou Augé N, Genovés González J, Burón Pust A, Payà Panadés A, Carreras Collado R. Inadequate visits to the emergency department by pregnant women. *J Obstet Gynaecol.* 2018;38(2):161-166. doi: 10.1080/01443615.2017.1328672.
8. Aksoy H, Aksoy U, Ozturk M, Ozyurt S, Acmaz G, Karadag OI, Yucel B, Aydin T. Utilization of emergency service of obstetrics and gynecology: a cross-sectional analysis of a training hospital. *J Clin Med Res.* 2015;7(2):109-14. doi: 10.14740/jocmr2013w.