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1 **Care for uterine fibroids: another casualty of the COVID**
2 **pandemic**

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18 **Shortened running title:** Uterine fibroids during COVID-19 pandemic

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20 **Keywords:** Uterine fibroid; COVID-19; Health policy; Population health; Healthcare access

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27 **Abstract**

28 Overall, during the COVID-19 pandemic, a large proportion of uterine fibroids were not
29 managed in the hospital setting. The lockdown period was associated with large reductions in
30 hospital service utilisation, particularly for non-emergency patients. As we observed no short-
31 term post-lockdown catch-up, two questions arise: What became of these untreated patients?
32 How has their future health been affected? Two hypotheses appear likely. The first is that the
33 woman continued receiving outpatient care, but the therapeutic procedures took place only in
34 hospitals and there were fewer of them. While medical treatment could theoretically have
35 been used, the only available treatment was removed from the market in March 2020 due to
36 the risk of serious drug-induced hepatitis. The second is that of non-recourse to care, or its
37 deferral for more than a year, or even therapeutic abstention because no kind of treatment was
38 available. This strongly suggests a loss of opportunity for these women, with its
39 accompanying risks of hysterectomy, of transfusions, and of impaired quality of life.

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Care for uterine fibroids: another casualty of the COVID pandemic

Saad Zbiri^{1*}; Arnaud Fauconnier^{1,2}; Carine Milcent^{3,4*}

Uterine fibroids are the most common benign tumours in women (1,2). The main consequences of uterine fibroids are menorrhagia and pelvic pain with the risk of complications related to uterine haemorrhage. Because treatment is mainly surgical or by embolization, it generally takes place in hospitals. Gonadotrophin-releasing hormone (GnRH) agonist treatment temporarily reduces fibroids, but its long-term use is unsafe (1,2). The European Medicines Agency suspended ulipristal acetate, the pharmaceutical treatment, from the market in March 2020 (3). Simultaneously, the new coronavirus disease 2019 (COVID-19) rapidly became a global pandemic (4). Governments have had to make difficult trade-offs to contain its spread (5). We used French national hospitalization data to explore variations in admissions of patients admitted with uterine fibroids in 2019 (reference year) and 2020. We considered four distinct periods during 2020 corresponding to different phases of the pandemic. We then discuss the impact of policy responses to COVID-19 on patients' access to care and health outcomes.

Figure 1 shows, as expected, no change in the number of admissions during the pre-health crisis period. The number then fell sharply after the lockdown decision. By the in-between period, it had begun to recover, returning to trace the pre-crisis distribution without catching up for the 2020 decrease already observed. Overall, over 2020, the number of admissions for

65 uterine fibroids dropped by about 14%. The variation in the rate of emergency admissions
66 (Figure S1 in the Appendix) indicates that women admitted during the lockdown period were
67 mainly those whose condition was relatively urgent. This result raises the question of the
68 management received by women who did not present an imminent emergency situation but
69 who normally used hospital services in non-crisis periods. Finally, the rates of anaemia and
70 transfusion (Figures S2 and S3 in the Appendix) in these patients rose substantially during the
71 lockdown period, compared with 2019; these higher rates persisted during the in-between
72 period. This finding shows that women who were hospitalised were the most severely ill and
73 brings us back to Figure 1's illustration of a major decrease in hospital admissions during the
74 lockdown. The women admitted to hospitals were evidently those with complications.

75 Overall, during the COVID-19 pandemic, a large proportion of uterine fibroids were not
76 managed in the hospital setting. The lockdown period was associated with large reductions in
77 hospital service utilisation, particularly for non-emergency patients. The lockdown measures
78 encouraged, even required, people to stay at home, to limit viral transmission and especially
79 to avoid overloading hospitals. This raises the question of patient healthcare-seeking
80 behaviour given care needs, which the higher complication and emergency admission rates
81 suggest had not changed. As we observed no short-term post-lockdown catch-up, two
82 questions arise: What became of these untreated patients? How has their future health been
83 affected?

84 Two hypotheses appear likely. The first is that the woman continued receiving outpatient care,
85 but the therapeutic procedures took place only in hospitals and there were fewer of them (2).
86 While medical treatment could theoretically have been used, the only available treatment,
87 ulipristal acetate, was removed from the market in March 2020 due to the risk of serious drug-
88 induced hepatitis (3). The second is that of non-recourse to care, or its deferral for more than a
89 year, or even therapeutic abstention because no kind of treatment was available. This strongly

90 suggests a loss of opportunity for these women, with its accompanying risks of hysterectomy,
91 of transfusions, and of impaired quality of life. Future health policy initiatives need to ensure
92 that nationwide limitations do not adversely affect patient health. Further research is needed
93 to examine the real impact of such policy measures on population health.

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99 **References**

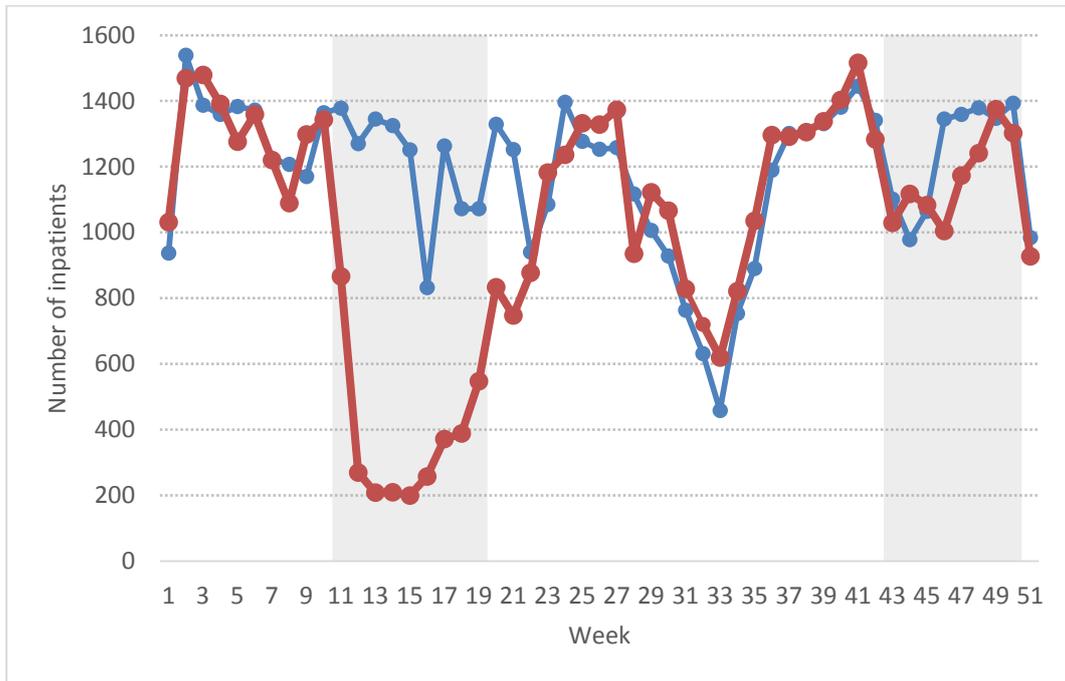
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118 This article has a Video Abstract presented by Saad Zbiri.
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146 **Figure 1:** Evolution of the number of inpatients admitted for uterine fibroid per week in
 147 France in 2019 versus 2020
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149 Source: French National Acute Care Hospital Discharge Diagnosis Databases (PMSI-MCO), exhaustive and
 150 consolidated administrative database, 2019-2020.
 151 Note: The study population (112 336 women) was selected in accordance with the literature by the appropriate
 152 codes of the International Classification of Diseases, 10th revision (ICD-10): D250, D251, D252, and D259,
 153 showing data for 2019 (blue, no lockdown) and 2020 (red, lockdown periods highlighted in grey). Stays are
 154 considered according to the week of admission. Four periods are distinguished: the pre-sanitary crisis period
 155 from 01/01/2020 to 16/03/2020, the lockdown period from 17/03/2020 to 09/05/2020, the “in between” period
 156 from 10/05/2020 to 15/11/2020, and the shutdown period from 16/11/2020 to 17/12/2020.
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180 **Disclosure of Interests**

181 The authors declare that they have no competing interests.

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183 **Contribution to Authorship**

184 CM analyzed the data, SZ wrote up the manuscript and AF edited the manuscript.

185

186 **Details of Ethics Approval**

187 Data used for this study are reported to the National Data Protection Authority. Informed

188 consent and ethics approval are not required, since the study was based on routinely collected

189 de-identified administrative data, as regulated by French law.

190

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194 **Data Availability Statement**

195 The data that support the findings of this study are available from *Agence Technique*

196 *d'Information Hospitalière* (ATIH) Digital. Restrictions apply to the availability of these data,

197 which were used under license for this study.

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199 **Consent for Publication**

200 All authors reviewed and approved the final manuscript.

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