

factors, but PH is a rare disease<sup>9</sup> and the number of patients was already high because of the concentrating effect of the national reference centre. Finally, although our study population had well-established precapillary PH, mPAP was not very elevated, and right atrial pressure and cardiac index were not drastically changed, suggesting optimised treatment. Nevertheless, haemodynamic data are comparable with those in other surgical studies<sup>2-7</sup>. Still, the incidence of major complications is significant. We can only suspect that the risk of complications would be higher with more disturbed haemodynamic abnormalities and with less specialised care.

The present study provides data on the occurrence of complications associated with GI endoscopy in patients with precapillary PH, which should not be underestimated. The incidence of major complications was in the lower range of what is seen in non-cardiothoracic non-obstetric surgery, but their occurrence was circumscribed to the day of the procedure and short- and long-term outcomes were not modified. A multidisciplinary approach and a careful perioperative planning are likely important factors.

### Declarations of interest

The authors declare that they have no conflict of interest.

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### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.bja.2020.09.017>.

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## Pain-free day surgery? Evaluating pain and pain assessment during hysteroscopy

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Editor—Hysteroscopy is a diagnostic gynaecological procedure traditionally requiring administration of general anaesthesia, but more frequently completed using local anaesthesia within a day-case (ambulatory) setting. Advantages associated with this transition include decreased completion times, fewer risks, and lower clinical costs.<sup>1,2</sup> However, maintaining

patient satisfaction remains a high priority, as the risk of pain and discomfort is a primary concern.<sup>3</sup> Multiple sources in the UK describe this procedure as non-painful, although this description is being challenged by public campaigns. Numerous services advertise the procedure as being either pain free or low pain; however, it is estimated that 25% of

patients report experiencing intense or intolerable pain.<sup>4</sup> For severe pain, local anaesthetic can be administered, but this does not guarantee effective pain management.<sup>5</sup>

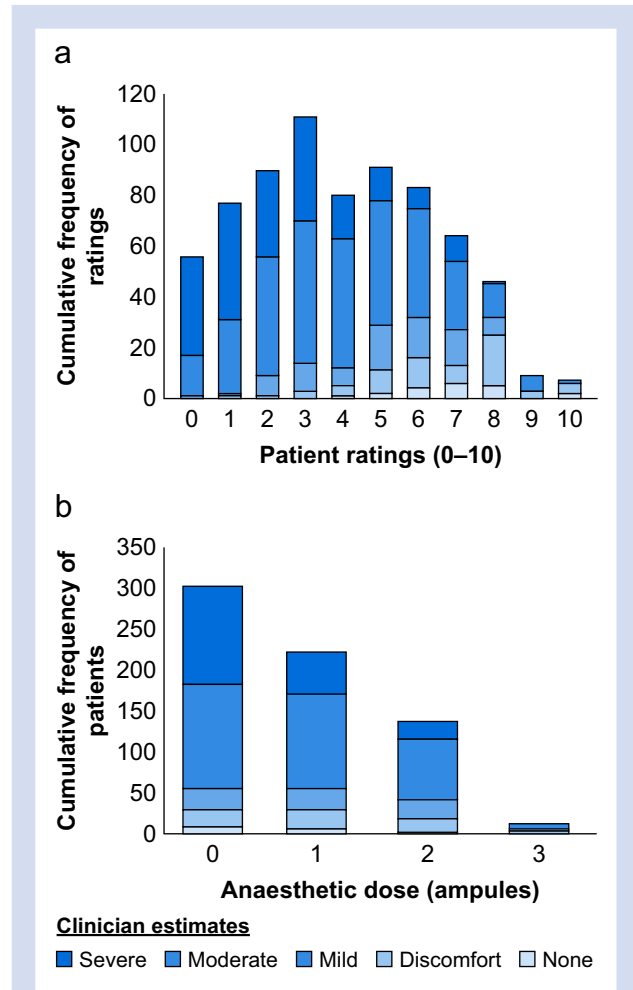
In 2013, Parliament instigated a campaign to 'End barbaric NHS hysteroscopies with inadequate pain relief'.<sup>6</sup> Nevertheless, a disconnect remains between the view of hysteroscopy as a low-pain procedure and frequent patient reports of severe pain. For some, hysteroscopy may be a routine and painless procedure, whilst for others it can elicit severe pain.<sup>4</sup> To evaluate the incidence of pain during hysteroscopy, and the congruency of patient and clinician assessments of pain, we examined hysteroscopy outcomes.

Between 2009 and 2017, data were recorded from 804 hysteroscopy patients (age 51.8 [standard deviation {sd}] 12.2] yr) at the Royal Berkshire Hospital in Reading, UK. Permission to analyse and disseminate the data was obtained via the local Research & Development department, in line with the National Research Ethics Service guidance on the completion of clinical audits. We collected postoperative clinical reports, including ampules of anaesthetic administered (0–3 ampules; plain mepivacaine hydrochloride 3% administered via a 2.2 ml Scandonest® dental cartridge and needle, Septodont, Maidstone, Kent, U.K., <https://www.septodont.co.uk/products/scandonest-3-plain>; <https://www.septodont.co.uk/>), and the clinician's estimate of pain during the procedure, recorded on a five-point verbal descriptive scale with the following labels: none, discomfort, mild, moderate, and severe. Patients provided a retrospective verbal report of pain experienced using a numeric rating scale between 0 and 10, with 0 representing no pain and 10 the most severe pain ever experienced. During the 8 yr period of data entry and collection, clinicians and patients remained blinded towards each other's impressions, and each of the separate questionnaires remained consistent. During hysteroscopy, the patients could be administered anaesthetic on the basis of clinical judgement based on pre- and intraoperative indications. After the procedure, the patients returned to a waiting room and provided a retrospective pain report. During this time, the clinicians completed their clinical report.

Analysis was restricted to the responses to three variables: clinicians' retrospective pain ratings, patients' retrospective ratings of their own pain during the procedure, and number of ampules of local anaesthetic. Spearman's rank-order correlation coefficients were calculated to investigate the congruence of pain assessment between patients and doctors, and how analgesia administration was related to these assessments.

Mean patient pain rating was 3.97/10 (sd 2.45), with 17.6% of patients reporting pain >7 (n=126) and only 7.8% being pain free (n=64). Mean clinician pain rating was 3.92/5 (sd 1.00). Patient pain ratings were negatively correlated with clinician estimates of patient pain ( $r_s^1$  [714]=−0.525;  $P<0.0001$ ; Fig. 1a). Clinician retrospective pain estimates were negatively correlated with anaesthetic dose ( $r_s$  [678]=−0.213;  $P<0.0001$ ). However, patient pain ratings were positively correlated with anaesthetic dose ( $r_s$  [673]=0.110;  $P<0.005$ ). As shown in Figure 1b, a high percentage of patients (n=303; 37.7%) received no medication at all, and only very few (n=14; 1.9%) were given the maximum dose. A substantial number of individuals given no pain medication were judged to be in severe (n=120) or moderate (n=128) pain.

<sup>1</sup> Due to the use of multinomial logistic regression, the effect size used was Nagelkerke Pseudo-R<sup>2</sup> representing a Cox and Snell R<sup>2</sup> value, adjusted for categorical data.



**Fig 1.** Hysteroscopy pain reports, clinician estimates, and local anaesthetic administration. (a) Association between patient pain ratings and the estimated rating of the patients' pain provided by the clinician that completed the hysteroscopy. Stacked bars indicate the proportion of clinician ratings for each unit of patient ratings. (b) Estimated clinician pain ratings associated with number of ampules of local anaesthetic applied intraoperatively. Stacked bars indicate the proportion of clinician ratings for each unit of administered local anaesthetic.

Additionally, a significant proportion of patients given a non-maximal dose rated pain >7/10 (zero ampule: n=46; one ampule: n=50; two ampules: n=15).

These results suggest that descriptions of hysteroscopy should be updated to reflect the actual likelihood of pain to be experienced during the procedure and the need to re-evaluate extant pain management strategies. The patients' ratings of surgical pain were negatively correlated with the clinicians' estimates, suggesting a disconnect between clinician pain assessment and patient experience. This disconnect directly influenced patient outcomes: the clinicians showed high confidence in the efficacy of their interventions, reporting lower pain for patients given higher doses of analgesia. In fact, the patients who received more analgesia reported higher pain ratings. Recognition of this disconnect suggests that the use of increased dosages could improve pain management, as the clinicians rarely utilised the maximum dose available.

Importantly, this correlation could include successful pain management interventions with more than half (55.2%) of patients with low pain ratings (0–3) being administered local anaesthetic. This may contribute to the inverse correlation with high clinician pain estimates, leading to the administration of local anaesthetic facilitating low postoperative pain patient ratings.

Decisive clinical action frequently necessitates the use of heuristics; thus, examining biases can help us understand intraoperative pain management.<sup>7</sup> Clinicians frequently err on the side of trusting their own clinical skills at the expense of patient statements<sup>8</sup> and can also be overconfident in the effectiveness of their pain management.<sup>9,10</sup> Overestimation of analgesic efficacy could explain why patients receiving the highest dose of analgesia received lower clinician pain estimates, despite their own higher ratings.

In summary, these findings illuminate the experience of pain during hysteroscopy. We provide support for campaigns raising awareness of pain involving this procedure, with 17.6% of patients reporting pain >7/10 and only 7.8% reporting no pain at all. This indicates that patients are likely to experience pain during their procedure, and the descriptions provided to our patients should reflect this. Our results also identified a disconnect between clinician and patient pain reports, as we observed an inverse relationship between patient pain ratings and clinician estimates of the same pain. It is important to note that these results require confirmation, as multiple factors are likely to be important when investigating individual differences in pain vulnerability and the efficacy of analgesia. However, these data do suggest a need to base evaluation of intraoperative pain during hysteroscopy on a more reliable assessment method.

### Declarations of interest

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## The big short(age): perioperative and patient-reported outcomes during a fentanyl shortage at a tertiary care facility

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