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Research Letter

Outcomes of preoperative real-time polymerase chain reaction testing for SARS CoV-2 in elective otolaryngology surgical patients during the pandemic: a prospective cohort study

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Dear Editor,

Preoperative real-time polymerase chain reaction (RT-PCR) testing has become widely used as a means of excluding SARS CoV-2 prior to elective surgery[1]. Most data on preoperative patients have focused on SARS-CoV-2 detection, but without comprehensive follow-up of patients to assess the risk of transitioning to a COVID-19-positive status in the postoperative period[2]. Among asymptomatic patients, an RT-PCR test may be falsely negative if performed too early in the disease incubation period[3]. The authors wished to evaluate the outcome of preoperative RT-PCR testing prior to elective otolaryngological surgery, with systematic follow-up of all patients at 14 days, to capture cases transitioning to symptomatic COVID-19 in the postoperative period.

A prospective cohort study was carried out at five sites in the Republic of Ireland. Ethical approval was granted by the National Research Ethics Committee (20-NREC-COV-087). Patients presenting for elective otolaryngology surgery from 2 September to 18 December 2020, with negative preoperative RT-PCR (AllplexTM 2019 nCoV Assay, Seegene Inc.) swabs, taken within 72 hours of hospital admission, were eligible for inclusion. Study data were collected prospectively and managed using the REDCap^{TM} (Royal College of Surgeons, Ireland) electronic data-capture tool. Participants were contacted 14 days after surgery and answered a questionnaire. The 14-day community prevalence data were obtained from the Health Surveillance Protection Centre. The primary outcome measure was a postoperative diagnosis of COVID-19. Secondary outcome measures were occurrence of major respiratory complication (defined as need for hospital readmission) or any respiratory symptoms. Statistical analysis was performed with Stata Release 16^{TM}. Where zero frequencies were observed, only the upper confidence limit is reported.

From 1911 eligible patients, 638 were approached for inclusion. Of these, 499 consented to be included in the 14-day follow-up. Demographics and operative details are presented in *Table 1*. During the inclusion period, 10 patients had positive preoperative tests for SARS-CoV-2, giving a yield rate of 0.5 per cent. The peak community incidence of new COVID-19 cases was 302.9 per 100 000 (14–31 October 2020).

At 14-day follow-up, no COVID-19 infections were reported. Thirty-nine patients underwent further RT-PCR testing (all negative) due to hospital readmission for post-tonsillectomy bleed or other complications (20 patients), respiratory symptoms (6 patients), prolonged in-patient stay (5 patients), occupational reasons (5 patients) and close contact to confirmed cases (3 patients). Furthermore, 18 patients had respiratory symptoms but were not retested because they did not seek medical advice (16 patients) or the attending doctor felt they did not meet testing criteria (2 patients). There were no major respiratory complications. The upper 95 per cent confidence limit of developing symptomatic COVID-19 infection was estimated at 0.74 per cent.

These findings suggest that patients with negative preoperative RT-PCR tests have a low risk of transitioning to symptomatic

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Table 1 Demographics of participants and procedures performed on participants included in the study

Details of participants	Number
Total	**499**
Sex	
Female	249
Male	250
Age (years)	
Mean	36.41
Median	35
Range	0.25–90
Standard deviation	22.7
Centre	
South Infirmary University Hospital, Cork	279
Galway University Hospital, Galway	92
University Hospital Waterford, Waterford	69
Royal Victoria Eye and Ear, Dublin	44
Children's Health Ireland, Crumlin	15
Procedure	
Major head and neck surgery	95
Minor head and neck surgery	94
Major otology surgery	21
Minor otology surgery	71
Major rhinology surgery	41
Minor rhinology surgery	41
Tonsillectomy and adenoidectomy	136

COVID-19 in the postoperative period. The COVIDSurg Collaborative study reported a 30-day postoperative COVID-19 incidence of 0.5 per cent. There was, however, significant variability between participating centres regarding criteria for and timing of preoperative swabs, and background community incidence[4]. Kane reported a 1.4 per cent incidence of postoperative COVID-19 infection in a single centre in the UK[5]. The peak community incidence of COVID-19 (623 per 100 000) and positive yield on preoperative testing (2.4 per cent) were, however, higher than for the present study.

Limitations to this study include the possibility of failing to capture cases of COVID-19 which remained asymptomatic, and the possibility of selection bias among the participants recruited to the study. In addition, these findings should be interpreted in the context of the community incidence and preoperative testing yield during the study period. Major strengths included the prospective enrolment and systematic 14-day follow-up.

Collaborators

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Disclosure. The authors declare no conflict of interest.

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