Prevalence of SARS-COVID-19 serum IgG antibodies amongst staff on an acute surgical unit

Editor

Over 40,000 people have died in the UK from COVID-19, one of the highest *pro rata* death rates in the world[1]. The pandemic has had a profound impact on the NHS and all health care systems around the world[2]. Recently, SARS-CoV-2 antibody testing became more widely available for NHS employees and the wider healthcare community. It is believed that this scaled up testing will determine the rate of individual "immunity" and these data regarding antibody levels and the duration of protection, are essential for public health policy makers particularly if public health bodies are to adopt the concept of an "immune work cohort"[3].

We present the results of SARS-CoV-2 antibody testing in healthcare staff from a tertiary acute general surgical unit that has been managing both acute surgical patients and elective cancer operations during the pandemic. We utilised the Public Health England approved Abbott ELISA based test[4] which measures IgG antibodies. In our tertiary surgical unit between 29/03/2020 and 31/05/2020 we admitted 1964 patients with 71 testing positive for COVID-19. We surveyed 215 staff including a wide spectrum of healthcare workers from a variety of age ranges that had undergone antibody testing (*Table 1*). Interestingly, despite 175/215 reporting contact with COVID-19 positive patients only 6/215 had a positive PCR result and 15/215 reported a positive antibody test (*Table 1*). Only 3/6 individuals with a positive PCR test were demonstrated to have SARS-CoV-2-IgG antibodies. Additional data is needed on sero-conversion rates and immunity in healthcare workers, particularly in ethnic minority workers who make up a substantial proportion of the National Health Service workforce and who are at a higher risk from COVID-19.

Our "immunity" rate of 7%, although in line with a recently publish paper from Switzerland[5], is extremely low and concerning especially in respect of the anticipated "herd immunity". Herd immunity would mitigate many of the issues presently being confronted and it will clearly be many months at least before this makes a realistic contribution. A recent study of 105 anaesthesiologists and affiliated intensive care workers in New York found 54% reported exposure to COVID-19 patients with 26% reporting post-exposure symptoms[6] and COVID-19 antibodies were detected in 12·1%. Our relatively low rate of positive antibodies can be attributed to the combination of early and rapid testing, isolation of emergency and elective patients, full availability and early implementation of personal protective equipment and a relative low incidence of COVID-19 in our community (2494 cases to 29/06/2020) and hospitals (1007 treated and discharged and 398 deaths (29/06/2020)). The recent spike in new cases in Leicester resulting in the first local lockdown in the UK will test this hypothesis and the ability of these hospital protocols to control our in-hospital nosocomial transmission.

The identification of COVID-19 positive patients and subsequent tracing must remain the priority and

Table 1 Demographics and results of COVID-19 PCR and Antibody testing at a general surgical unit. COVID-19 symptoms include: Dry cough, temperature, nasal discharge, wheeze, myalgia, diarrhoea, shortness of breath and anosmia

Total Number of staff surveyed	*N* = 215	Positive antibody result *N* = 15	Staff members reporting having any contact with COVID-19 positive patients *N* = 175	Staff members reporting having any contact with COVID-19 positive staff members or relatives *N* = 103	Staff members reporting having any COVID-19 symptoms *N* = 43	Positive throat PCR test *N* = 6
Age Range						
20-29	57	6	51	35	11	2
30-39	63	5	52	29	13	1
40-49	62	4	53	29	13	3
50-59	28		17	8	5	
60-69	5		2	2	1	
Job Position						
Admin/Clerical	18	1	2	3	2	
Consultant	10		10	4		
Housekeeping/logistics	12	1	12	4		
Junior Doctor	43	2	40	27	7	2
Nurse	84	10	69	45	26	4
Nursing-Assistant	35	1	30	18	6	
Theatre Staff	13		12	2	1	

continued assessment of COVID-19 antibody prevalence will provide essential seroprevalence data that public health bodies need to inform their advice as the pandemic evolves.

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1 Worldometers.info. COVID-19 CORONAVIRUS PANDEMIC. https://www.worldometers.info/coronavirus/#countries

2 COVIDSurg Collaborative. Global Guidance for surgical care during the COVID-19 pandemic. *Br J Surg* 2020; **107**: 1097–1103.

3 Altmann DM, Douek DC, Boyton RJ. What policy makers need to know about COVID-19 protective immunity. *Lancet* 2020; **395**: 1527–1529.

4 Evaluation of the Abbott SARS-CoV-2 IgG for the detection of anti-SARS-CoV-2 antibodies. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/890566/Evaluation_of_Abbott_SARS_CoV_2_IgG_PHE.pdf.

5 Stringhini S, Wisniak A, Piumatti G, Azman AS, Lauer SA, Baysson H *et al.* Seroprevalence of anti-SARS-CoV-2 IgG antibodies in Geneva, Switzerland (SEROCoV-POP): a population-based study. *Lancet* 2020; **396**: P313–P319.

6 Morcuende M, Guglielminotti JLR, Landau R. Anesthesiologists' and Intensive Care Providers' Exposure to COVID-19 Infection in a New York City Academic Center: A Prospective Cohort Study Assessing Symptoms and COVID-19 Antibody Testing. *Anesth Analg* 2020; https://doi.org/10.1213/ANE.0000000000005056 [Epub ahead of print].