IPCRG practice driven answers on COVID-19 and respiratory questions

Where available, should a pulse oximeter be provided for patients with COVID-19 symptoms following assessment?

What the research says

Pulse oximeters can be an effective tool for home-based self-monitoring of blood oxygen levels in patients with SARS-CoV-2 infection and as a trigger for patients to seek clinical advice or for referral for hospital care (le Rutte et al 2021). In recent years the cost of pulse oximetry has fallen dramatically and it is now a broadly affordable tool for self-monitoring, and often cheaper than a digital thermometer. In Singapore, pulse oximeters are being distributed to every household in response to high infection rates and an influx of new SARS-CoV-2 variants. The aim is to detect patients with silent hypoxia in the absence of other or relatively mild COVID-19 symptoms given the proposed association between the emergence of silent hypoxia, the onset of clinical deterioration and poor outcomes (Brouqui et al 2021; Busana et al 2021; Dillon et al 2021).

What this means for your clinical practice

- Every patient with respiratory symptoms requires assessment by an appropriately qualified HCP (this could be via telephone); the use of pulse oximetry as part of the close monitoring of patients during SARS-COV-2 infection may be considered based on the result of assessment and according to national guidelines
- Consider home-based pulse oximetry for people who:
    - **Have a diagnosis of COVID-19 (clinical or positive test result) AND are symptomatic and EITHER >65 years or <65 years and clinically extremely vulnerable to COVID or where clinical judgement applies, taking into account multiple additional COVID risk factors (NHSE 2021)**
- An effective method to capture silent hypoxia is to assess blood oxygen levels at rest and after 1 minute of a sit-to-stand test. A recent study in primary care used a cut-off point of 92% or a decline of ≥4% to prompt further medical assessment (https://www.copper-onderzoek.nl/hap/)
- At present, there is no evidence to guide the daily frequency of self-monitoring. A reasonable recommendation would be for patients with SARS-CoV-2 infection to check their oxygen saturation twice a day in the morning and at night (or more often if instructed by their health care provider) or

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What this means for your clinical practice continued

following a worsening of symptoms such as chest pain, fast or difficulty breathing (at rest or while speaking) (New York City Health Department 2020)

- Pulse oximeter readings should be taken on a warm finger, with the patient in the upright (sitting) position and resting. The instrument should be left to stabilise for a minute before confirming the reading (Greenhalgh et al 2021)
- Advise patients whose blood oxygen level declines below 94% to seek (urgent) medical care; in healthy women over 70 years of age, 20% will have a reading between 92–94%, therefore, the individual cut-off may be set at a lower threshold
- Advise patients whose blood oxygen level declines below 90% to seek emergency transfer to hospital
- A drop in saturation of 3% or more below what is normal for the patient is considered abnormal and should prompt further assessment

Useful links and supporting references

Brouqui P, et al. Asymptomatic hypoxia in COVID-19 is associated with poor outcome. Int J Infect Dis 2021;102:233–8. Available at: https://www.ijidonline.com/article/S1201-9712(20)32271-2/fulltext. Accessed July 2021.
Busana M, et al. Prevalence and outcome of silent hypoxemia in COVID-19. Minerva Anestesiol 2021;87:325–33. Available at: https://www.minervamedica.it/en/journals/minerva-anestesiologica/article.php?cod=R02Y2021N03A0325. Accessed July 2021.

Useful links and supporting references continued

Dillon K, et al. Pre-hospital lowest recorded oxygen saturation independently predicts death in patients with COVID-19. Br Paramed J 2020;5:59–65. Available at: https://pubmed.ncbi.nlm.nih.gov/33456398/ Accessed July 2021
Greenhalgh T, et al. Remote management of Covid-19 using home pulse oximetry and virtual ward support. BMJ 2021;372:n677. doi: 10.1136/bmj.n677. Erratum in: BMJ. 2021 Apr 19;373:n1001. Available at: https://www.bmj.com/content/372/bmj.n677 Accessed June 2021.
Le Rutte T, et al. Home-based monitoring and early treatment of COVID-19 to reduce hospital admissions and improve outcomes: the COPPER studies. General Practitioners Research Institute. For more information on the COPPER studies visit: Info HAP - (copper-onderzoek.nl).
NHSE. Novel coronavirus (COVID-19) standard operating procedure. COVID oximetry @home. Publications approval reference: 001559. Version 1.1.01. March 2021. Available at: https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/11/C0817-standard-operating-procedure-covid-oximetry-@home-v1.1-march-21.pdf. Accessed July 2021.
NYC Health Department. COVID-19: How to Monitor Your Oxygen Level https://www1.nyc.gov/assets/doh/downloads/pdf/covid/providers/covid-19-monitor-oxygen-patient-handout.pdf. Accessed June 2021.

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