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Arterial Oxygen Saturation and other Clinical Predictors of Survival in Patients with Covid-19: A Review of Cases in a Tertiary Care Hospital in Nigeria

Saturation artérielle en oxygène et autres prédicteurs cliniques de la survie des patients avec Covid-19: Examen des cas dans un hôpital de soins tertiaires au Nigeria

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ABSTRACT

BACKGROUND: We assessed clinical parameters in patients confirmed to have COVID-19 in relation to arterial hypoxaemia and survival.

METHODOLOGY: This was a retrospective chart review of patients who were confirmed positive for SARS-CoV-2 virus by Real Time-Polymerase Chain Reaction (RT-PCR) testing. Data extracted from patients' case files included patient demographics, presenting symptoms, provisional diagnoses, and outcomes of hospitalisation. Descriptive variables were summarized; proportions were compared using Chi-square tests, and independent predictors of mortality were assessed using multivariate regression analysis. A p-value of < 0.05 was considered as statistically significant.

RESULTS: There were a total of 61 patients with positive RT-PCR testing: mean age \pm SD (minimum - maximum) was 53.0 \pm 18.5 (5 months - 90) years. Persons aged 60 years and above were the largest group (n=24, 39.3%). More than half were male (n=35, 57.4%); about 43% had one morbidity; 41.0% had at least two co-morbidities. The mean (SD) arterial oxygen saturation (SpO₂) was 86.9% \pm 16.7. Patients who were clinically dyspnoeic at presentation, and who had co-morbidities were significantly more hypoxaemic (p = 0.026 and 0.04, respectively). Significantly more patients who had normal oxygen saturation at presentation survived (p = 0.006). None of these variables was an independent predictor of mortality, however.

CONCLUSION: Arterial hypoxaemia was significantly associated with dyspnoea and underlying disease, and normal oxygen saturation at presentation was significantly associated with survival. Hospital managers and clinicians may thus prioritize routine pulse oximetry, supplemental oxygen therapy and management of co-morbidities in the COVID-19 fight. *WAJM 2021; 38(2): 109–113.*

Keywords: COVID-19, Arterial oxygen saturation, Co-morbidity, Predictors of survival, University of Benin Teaching Hospital, Nigeria.

RÉSUMÉ

CONTEXTE: Nous avons évalué les paramètres cliniques chez les patients dont la présence de COVID-19 a été confirmée, en relation avec l'hypoxémie artérielle et la survie.

MÉTHODOLOGIE: Il s'agissait d'un examen rétrospectif des dossiers des patients dont la présence du virus du SRAS-CoV-2 avait été confirmée par un test d'amplification en chaîne par polymérase en temps réel (RT-PCR). Les données extraites des dossiers des patients comprenaient les données démographiques des patients, la présentation des symptômes, les diagnostics provisoires et les résultats de l'hospitalisation. Les variables descriptives ont été résumées; les proportions ont été comparées à l'aide de tests du Khi-deux, et les prédicteurs indépendants de la mortalité ont été évalués à l'aide d'une analyse de régression multivariée. Une valeur p de < 0,05 a été considérée comme statistiquement significative.

RÉSULTATS: Au total, 61 patients ont obtenu un résultat positif au test RT-PCR: l'âge moyen \pm SD (minimum - maximum) était de 53,0 \pm 18,5 (5 mois - 90) ans. Les personnes âgées de 60 ans et plus constituaient le groupe le plus important (n=24, 39,3 %). Plus de la moitié étaient des hommes (n=35, 57,4%); environ 43% avaient une morbidité; 41,0% avaient au moins deux co-morbidités. La saturation artérielle en oxygène (SpO₂) moyenne (SD) était de 86,9 % \pm 16,7. Les patients qui étaient cliniquement dyspnéiques à la présentation et qui présentaient des comorbidités étaient significativement plus hypoxémiques (p = 0,026 et 0,04, respectivement). Un nombre significativement plus élevé de patients ayant une saturation en oxygène normale à la présentation ont survécu (p = 0,006). Cependant, aucune de ces variables n'était un prédicteur indépendant de la mortalité.

CONCLUSION: L'hypoxémie artérielle était significativement associée à la dyspnée et à la maladie sous-jacente, et la saturation en oxygène normale à la présentation était significativement associée à la survie. Les gestionnaires d'hôpitaux et les cliniciens peuvent donc donner la priorité à l'oxymétrie de pouls de routine, à l'oxygénothérapie complémentaire et à la gestion des comorbidités dans la lutte contre la COVID-19. *WAJM 2021; 38(2): 109–113.*

Mots-clés: COVID-19, Saturation artérielle en oxygène, Co-morbidité, Prédicteurs de survie, Hôpital universitaire de l'Université du Bénin, Nigeria.

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Abbreviations: ARDS, Acute Respiratory Distress Syndrome; MERS-CoV, Middle East Respiratory Syndrome-Coronavirus; NCP, Novel Coronavirus Pneumonia; RT-PCR, Real Time-Polymerase Chain Reaction; SARS, Severe Acute Respiratory Syndrome coronavirus; SpO₂, Oxygen saturation.