Socioeconomic status and post-covid illness trajectory

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Funding Acknowledgements: Type of funding sources: Public grant(s) – National budget only. Main funding source(s): CISCO-19 was an investigator-initiated clinical study that was funded by the Chief Scientist Office of the Scottish Government (COV/GLA/Portfolio project number 311300). The funder had no role in the design, conduct (non-voting TSC member), data analysis and interpretation, manuscript writing, or dissemination of the results.

Background: The associations between deprivation and illness trajectory after hospitalisation for coronavirus disease-19 (COVID-19) are uncertain.

Methods: A prospective, multicentre, longitudinal, cohort study involving post-COVID-19 patients enrolled in-hospital or early post-discharge (visit 1) and re-evaluated at 28-60 days post-discharge (visit 2) and in the longer term. Serial research blood tests (biomarkers), digital electrocardiography, and patient-reported outcome measures were obtained at both visits. Novel, multisystem imaging, including chest computed tomography (CT) with pulmonary and coronary angiography, cardiovascular and renal magnetic resonance imaging, was acquired at visit 2. The analysis of primary and secondary outcomes by socioeconomic status was prespecified. The Scottish Index of Multiple Deprivation (SIMD), a small-area measure of social deprivation based on domiciled post code reflecting seven factors including income, employment, education, health, access to services, crime, and housing, and categorized into general population quintiles, was used to measure social deprivation. The EQ-5D-5L, Brief Illness Perception Questionnaire (BIPQ), Patient Health Questionnaire-4 (PHQ-4) for Anxiety and Depression, and the Duke Activity Status Index (DASI) were used to assess health status. Follow-up of clinical outcomes was undertaken using electronic health records.

Results: Two hundred and fifty-two patients (mean ± SD age 55.0 ± 12.0 years, body mass index (BMI) 31.3 ± 6.9 kg/m2, 101 (40%) female, and 59 (23%) with diabetes) were enrolled and had follow-up completed at a median 428 (IQR 385, 538) days. Deprivation status was positively associated with BMI (p=0.0444) and diabetes (p=0.0239).

One hundred and eighty-six (74%) patients reattended for investigation 28-60 days post-discharge. Lung ground glass opacity and/or consolidation (p=0.0085), obstructive coronary artery disease (p=0.0128) and renal inflammation (p=0.0421) were associated with deprivation. At 28-60 days post-discharge (n=184), health-related quality of life (EQ-5D-5L utility score, p=0.0084), illness perception, (BIPQ, p=0.0004), anxiety and depression (PHQ-4 score, p=0.0038), physical activity (DASI, p=0.002) and estimated peak oxygen consumption (ml/min/kg) (p=0.002) were worse with greater deprivation.

At 3 months (n=252), deprivation status was associated with more referrals to secondary care because of ongoing COVID-19 symptoms (p=0.0438). Clinical outcomes did not associate with deprivation.

Conclusion: In a post-hospital COVID-19 population, socioeconomic deprivation was associated with impaired health status and secondary care episodes. Deprivation influences illness trajectory after COVID-19.