**Online Data Supplementary**

**Supplementary method**

Coding algorithm of Charlson Comorbidity Index (CCI)

Medical condition which was used in calculation for CCI are described in Table S1. Total nineteen medical conditions were contained in this index. Scores are weighted by each condition from 1 to 6. Total scores are ranged from 0 to 37.

**Tables**

Table S1. Charlson`s weighted index of comorbidities

|  |  |  |
| --- | --- | --- |
| Comorbidities | Weights | ICD-10 |
| Myocardial infarction | 1 | I21.x, I22.x, I25.2 |
| Congestive heart failure | 1 | I09.9, I11.0, I13.0, I13.2, I25.5, I42.0, I42.5–I42.9, I43.x, I50.x, P29.0 |
| Peripheral vascular disease | 1 | I70.x, I71.x, I73.1, I73.8, I73.9, I77.1, I79.0, I79.2, K55.1, K55.8, K55.9, Z95.8, Z95.9 |
| Cerebrovascular disease | 1 | G45.x, G46.x, H34.0, I60.x–I69.x |
| Dementia | 1 | F00.x–F03.x, F05.1, G30.x, G31.1 |
| Chronic pulmonary disease | 1 | I27.8, I27.9, J40.x–J47.x, J60.x–J67.x, J68.4, J70.1, J70.3 |
| Rheumatic disease | 1 | M05.x, M06.x, M31.5, M32.x–M34.x, M35.1, M35.3, M36.0 |
| Peptic ulcer disease | 1 | K25.x–K28.x |
| Mild liver disease | 1 | B18.x, K70.0–K70.3, K70.9, K71.3–K71.5, K71.7, K73.x, K74.x, K76.0, K76.2–K76.4, K76.8, K76.9, Z94.4 |
| Diabetes without chronic complication | 1 | E10.0, E10.1, E10.6, E10.8, E10.9, E11.0, E11.1, E11.6, E11.8, E11.9, E12.0, E12.1, E12.6, E12.8, E12.9, E13.0, E13.1, E13.6, E13.8, E13.9, E14.0, E14.1, E14.6, E14.8, E14.9 |
| Diabetes with chronic complication | 2 | E10.2–E10.5, E10.7, E11.2–E11.5, E11.7, E12.2–E12.5, E12.7, E13.2–E13.5, E13.7, E14.2–E14.5, E14.7 |
| Hemiplegia or paraplegia | 2 | G04.1, G11.4, G80.1, G80.2, G81.x, G82.x, G83.0–G83.4, G83.9 |
| renal disease | 2 | I12.0, I13.1, N03.2–N03.7, N05.2–N05.7, N18.x, N19.x, N25.0, Z49.0–Z49.2, Z94.0, Z99.2 |
| Any malignancy, including lymphoma and leukemia, except  malignant neoplasm of  skin | 2 | C00.x–C26.x, C30.x–C34.x, C37.x–C41.x, C43.x, C45.x–C58.x, C60.x–C76.x, C81.x–C85.x, C88.x, C90.x–C97.x |
| Moderate and severe liver disease | 3 | I85.0, I85.9, I86.4, I98.2, K70.4, K71.1, K72.1, K72.9, K76.5, K76.6, K76.7 |
| Metastatic solid tumor | 6 | C77.x–C80.x |
| Acquired immune deficiency syndrome or human immunodeficiency virus infection | 6 | B20.x–B22.x, B24.x |

Table S2. Difference between non-ICS group and ICS group of COVID-19 in COPD

|  |  |  |  |
| --- | --- | --- | --- |
|  | Non-ICS (n=21) | ICS (n=14) | *p*-value |
| Age, years (mean ± SD) | 75.5±13.1 | 69.5±9.0 | 0.459 |
| Male sex, n (%) | 9 (42.9) | 7 (50.0) | 0.678 |
| mCCI score, points (mean ± SD) | 2.7±2.3 | 2.4±1.2 | 0.553 |
| Type of insurance |  |  |  |
| Medical aid insurance, n (%) | 1 (4.8) | 4 (28.6) | 0.049 |
| Clinical outcomes |  |  |  |
| Overall medical cost/patient, USD (mean ± SD) | 3,913±3,908 | 6,941±6,062 | 0.106 |
| Hospital length of stay, days (mean ± SD) | 20.0±16.7 | 28.6±19.7 | 0.171 |
| ICU admission rate, n (%) | 1 (4.8) | 0 (0.0) | - |
| Mortality, n (%) | 5 (23.8) | 3 (21.4) | 0.870 |

ICS, inhaled corticosteroid; COVID-19, Coronavirus disease 2019; COPD, Chronic obstructive pulmonary disease; SD, standard deviation; mCCI, modified Charlson Comorbidity Index; ICU, intensive care unit