**Supplement**

**Diagnostic Accuracy of the Montreal Cognitive Assessment in Screening for Cognitive Impairment in Initially Hospitalized**

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**Supplemental Appendix S1 – Demographic and clinical characteristics of included and excluded patients and TOMM low scorers.**

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Included (N=199) | Excluded(N=6) | TOMM low scorers(N=3)d |
| **Characteristics** |  |  |  |
|  | Age, years; median [IQR] | 63 [53-69] | 69 [57-75] | 50 [52-60] |
|  | Sex, female; n/N (%) | 61/199 (30.7%) | 1/6 (16.7%) | 2/3 (66.7%) |
| **Education levela** |  |  |  |
|  | Low; n/N (%)  | 36/199 (18.1%) | 3/6 (50.0%) | 2/3 (66.7%) |
|  | Medium; n/N (%) | 82/199 (41.2%) | 2/6 (33.3%) | 1/3 (33.3%) |
|  | High; n/N (%) | 81/199 (40.7%) | 1/6 (16.7%) | 0/0 (0.0%) |
| **Received care after hospital discharge** |  |  |  |
|  | Physical therapy; n/N (%) | 141/198 (71.2%) | 6/6 (100%) | 2/3 (66.7%) |
|  | Occupational therapy; n/N (%) | 53/198 (26.8%) | 2/6 (33.3%) | 1/3 (33.3%) |
|  | Rehabilitationb; n/N (%) | 86/198 (43.4%) | 4/6 (66.7%) | 2/3 (66.7%) |
|  | Psychology; n/N (%) | 47/198 (23.7%) | 2/6 (33.3%) | 1/3 (33.3%) |
| **Comorbiditiesc** |  |  |  |
|  | Chronic cardiac disease; n/N (%) | 38/178 (21.3%) | 0/5 (0.0%) | 0/0 (0.0%) |
|  | Chronic pulmonary disease; n/N (%) | 17/178 (9.6%) | 0/5 (0.0%) | 1/3 (33.3%) |
|  | Chronic kidney disease; n/N (%) | 10/178 (5.6%) | 0/5 (0.0%) | 0/3 (0.0%) |
|  | Diabetes; n/N (%) | 24/178 (13.5%) | 1/5 (20.0%) | 0/3 (0.0%) |
|  | Body-mass index, kg/m2; median [IQR] | 27.5 [53.0-69.0] | 25.9 [23.9-31.5] | 25.1 [27.8-31.7] |
|  | Hypertension; n/N (%) | 58/178 (32.6%) | 3/5 (60.0%) | 1/3 (33.3%) |
| **Disease-related parameters** |  |  |  |
|  | ICU stay, n/N (%) | 97/199 (48.7%) | 4/6 (66.7%) | 2/3 (66.7%) |
|  | Length of ICU stay, days; median [IQR] | 14 [7-24] | 17 [7-24] | 15, 18e |
|  | Invasive ventilation, days; median [IQR] | 14 [8-23] | 13 [6-16] | 14, 17e |
|  | Coagulation disorder, n/N (%) | 27/179 (15.1%) | 1/6 (16.7%) | 1/3 (33.3%) |
|  | Delirium, n/N (%) | 42/175 (24.0%) | 3/6 (50.0%) | 1/3 (33.3%) |
|  | Highest SOFA score; mean (SD) | 6.9 (2.9) | 8.0 [7.3-8.8]f | 11, 11e |
|  | APACHE IV; mean (SD) | 55.6 (16.6) | 49 [28-64]f | 37, 44e |
| **MoCA score,** median [IQR] | 26 [23-28] | 24 [21-27] | 19 [21-22] |
| **MoCA low**, n/N (%) | 79/199 (39.7%) | 3/6 (50.0%) | 3/3 (100%) |

*Note.* IQR=interquartile range. ICU=intensive care unit. SD=standard deviation. SOFA=sequential organ failure assessment. APACHE=acute physiology and chronic health evaluation. TOMM=test of memory malingering.

aEducation level was separated into low, medium, and high based on guidelines of the Dutch Central Bureau of Statistics.

bIncludes in- and outclinic rehabilitation.

cDefinitions are based on a World Health Organization template.

dThis group only consists of 3 patients, therefore instead of mean [IQR] the table holds *middle [lowest-highest]* value.

eValue for N=1 missing

fMedian [IQR]

**Supplemental Appendix S2 – MoCA accuracy under exclusion of TOMM low scorers**

In this sensitivity analysis, three patients were excluded due to having a score ≤45 on both the first and second trial of the Test of Memory Malingering (TOMM).

Under exclusion of these patients, 38.8% (76/196) scored below the common cut-off (<26) on the MoCA. Cognitive impairment was identified in 10.7% (21/196) of the sample.

Verbal memory had the highest percentage of scores falling into the non-average categories, with 5.6% of exceptionally low, 7.1% of below average scores and 12.8% of low average scores. This is followed by mental speed with 6.1% of exceptionally low, 4.6% of below average scores and 8.2% of low average scores.

The MoCA's area under the curve was calculated to be 0.81 [95% CI: 0.73 – 0.90]. The optimal cut-off was determined to be <24, which decreased sensitivity from 77.3% to 72.7% while improving specificity from 66.1% to 79.9%, compared to the commonly used cut-off (<26).