**Supplementary Tables**

**Supplementary Table 1 – Patient characteristics according to performance on the computerized DriveABLE™ Cognitive Assessment Tool (DCAT) – univariate analysis with three categories**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Characteristic** | **All**  **patients**  **(n=80)** | **Pass on DCAT**  **(n=34)** | **Indeterminate on DCAT**  **(n=39)** | **Fail on DCAT**  **(n=7)** | **P value** |
| **Liver disease severity** | | | | | |
| Child-Pugh category |  |  |  |  | 0.50 |
| *Child-Pugh A* | 20 (25.0) | 9 (26.4) | 11 (28.2) | 0 (0) |  |
| *Child-Pugh B* | 45 (56.3) | 19 (55.8) | 20 (51.3) | 6 (85.7) |  |
| *Child-Pugh C* | 15 (18.8) | 6 (17.6) | 8 (20.5) | 1 (14.3) |  |
| MELD-Na score | 13.4 ± 5.4 | 13.7 ± 5.5 | 13.3 ± 5.2 | 12.6 ± 6.9 | 0.87 |
| History of overt HE | 29 (36.3) | 9 (26.5) | 14 (35.9) | 6 (85.7) | 0.01 |
| Disease etiology |  |  |  |  | 0.85 |
| *Alcohol* | 31 (38.8) | 12 (35.3) | 16 (41.0) | 3 (42.9) |  |
| *Hepatitis C* | 19 (23.8) | 7 (20.6) | 11 (28.2) | 1 (14.3) |  |
| *NAFLD/cryptogenic* | 17 (21.3) | 8 (23.5) | 8 (20.5) | 1 (14.3) |  |
| *PBC/PSC/AIH* | 12 (15.0) | 6 (17.6) | 4 (10.3) | 2 (28.6) |  |
| *Other* | 1 (1.2) | 1 (2.9) | 0 (0) | 0 (0) |  |
| **Sociodemographic characteristics** | | | | | |
| Age (years) | 57.0 ± 7.4 | 52.2 ± 7.2 | 59.7 ± 5.1 | 65.4 ± 4.4 | 0.001 |
| Male Sex | 56 (70.0) | 23 (67.6) | 29 (74.4) | 4 (57.1) | 0.61 |
| Education (years) | 13.9 ± 2.6 | 13.8 ± 2.7 | 13.9 ± 2.4 | 14.1 ± 3.1 | 0.954 |
| **Physical frailty** | | | | | |
| Clinical Frailty Scale | 3.0 ± 1.0 | 2.5 ± 1.0 | 3.2 ± 0.8 | 3.9 ± 0.7 | 0.001 |
| TUG Test (seconds) | 10.6 ± 2.9 | 9.4 ± 2.2 | 11.3 ± 2.9 | 13.2 ± 3.6 | 0.001 |
| **Quality of life, Depression testing** | | | | | |
| EQ-VAS | 66.7 ± 19.6 | 64.2 ± 19.5 | 69.2 ± 20.6 | 65.9 ± 14.8 | 0.54 |
| Hospital Anxiety Depression scale (Depression subscore) | 4.8 ± 3.7 | 4.3 ± 3.7 | 4.7 ± 3.4 | 7.7 ± 4.6 | 0.09 |
| **Cognitive testing, HE testing** | | | | | |
| SIMARD MD | 85.9 ± 18.7 | 92.4 ± 18.9 | 81.1 ± 17.3 | 80.1 ± 17.9 | 0.03 |
| SIMARD MD Supermarket Task subcomponent | 21.8 ± 6.1 | 24.7 ± 5.4 | 19.9 ± 5.9 | 18.1 ± 3.7 | 0.001 |
| MoCA | 24.9 ± 3.3 | 26.1 ± 2.5 | 24.5 ± 2.9 | 20.6 ± 4.6 | 0.002 |
| PHES Battery | -2.2 ± 4.0 | 0.1 ± 2.7 | -3.1 ± 3.7 | -8.1 ± 3.2 | 0.001 |
| Stroop Encephalapp (OffTime+OnTime) (seconds) | 188.7 ± 48.9 | 156.8 ± 25.6 | 205.2 ± 44.7 | 252.4 ± 54.3 | 0.001 |
| MHE defined by abnormal Stroop | 63 (78.8) | 19 (55.9) | 37 (94.9) | 7 (100) | 0.001 |
| MHE criteria defined by abnormal PHES | 24 (30.0) | 4 (11.8) | 14 (35.9) | 6 (85.7) | 0.001 |
| MHE criteria defined by abnormal PHES and Stroop | 24 (30.0) | 4 (11.8) | 14 (35.9) | 6 (85.7) | 0.001 |
| **Driving Tests** | | | | | |
| DCAT | 34.4 ± 26.4 | 7.6 ± 8.7 | 50.1 ± 11.8 | 77.3 ± 5.4 | 0.001 |
| DORE |  |  |  |  |  |
| *Borderline or fail* | 2 (3.0) | 0 (0) | 1 (3.0) | 1 (14.3) | 0.02 |
| *Total driving score* | 7.8 ± 11.8 | 4.7 ± 5.1 | 8.0 ± 8.1 | 21.6 ± 31.4 | 0.04 |
| *Total driving errors* | 4.8 ± 1.9 | 4.2 ± 1.6 | 5.0 ± 1.8 | 7.1 ± 2.3 | 0.003 |
| *Skill defining errors* | 3.6 ± 1.7 | 3.3 ± 1.6 | 3.6 ± 1.8 | 4.9 ± 1.7 | 0.12 |
| *Competency-defining errors* | 1.2 ± 1.2 | 0.8 ± 0.8 | 1.4 ± 1.1 | 2.1 ± 2.0 | 0.04 |

~~a~~ ~~Comparison of characteristics across the 2 MHE classifications~~

Values: mean ± SD or n (%)

AIH, Autoimmune Hepatitis; DCAT, DriveABLE™ Cognitive Assessment Tool; DORE, DriveABLE™ On-Road Evaluation; EQ-VAS, EQ Visual Analog Scale; HE, Hepatic Encephalopathy; MELD-NA, Model for End-stage Liver Disease score with incorporation of serum sodium; MHE, Minimal Hepatic Encephalopathy; MoCA, Montreal Cognitive Assessment; NAFLD, Non-Alcoholic Fatty Liver Disease; PBC, Primary Biliary Cirrhosis, PHES, Psychometric Hepatic Encephalopathy Score; PSC, Primary Sclerosing Cholangitis; SD, Standard Deviation; SIMARD MD, Screen for the Identification of Cognitively Impaired Medically At-Risk Drivers, a Modification of the DemTect; Standard Deviation; TUG, Timed Up and Go

**Supplementary Table 2 – Predictors of indeterminate/fail versus pass on the**

**computerized DriveABLE™ Cognitive Assessment Tool (DCAT) (univariate logistic regression)**

|  |  |  |
| --- | --- | --- |
| **Variable** | **OR (95% CI)** | **P value** |
| **Liver disease information** | | |
| Child-Pugh category |  |  |
| *Child-Pugh A*  *Child-Pugh B*  *Child-Pugh C* | 1.00  1.1 (0.4 to 3.2)  1.2 (0.3 to 4.8) | -  0.84  0.77 |
| History of overt HE | 2.1 (0.8 to 5.6) | 0.12 |
| **Sociodemographic factors** | | |
| Age (years) | 1.2 (1.1 to 1.4) | 0.001 |
| Male sex | 1.2 (0.5 to 3.2) | 0.69 |
| Education (years) | 1.0 (0.9 to 1.2) | 0.78 |
| **Physical frailty** | | |
| Clinical Frailty Scale | 2.6 (1.5 to 4.5) | 0.001 |
| TUG Test (seconds) | 1.4 (1.1 to 1.8) | 0.003 |
| **Quality of life, Depression testing** | | |
| EQ-VAS | 1.01 (0.99 to 1.04) | 0.31 |
| **Cognitive testing, HE testing** | | |
| SIMARD MD | 0.96 (0.94 to 0.99) | 0.009 |
| SIMARD MD Supermarket Task subcomponent | 0.9 (0.8 to 0.9) | 0.001 |
| MoCA | 0.8 (0.7 to 0.9) | 0.005 |
| PHES Battery | 0.7 (0.5 to 0.8) | 0.001 |
| Stroop Encephalapp (OffTime+OnTime) (seconds) | 1.1 (1.0 to 1.1) | 0.001 |
| Abnormal Stroop | 17.4 (3.6 to 83.5) | 0.001 |
| Abnormal PHES | 5.8 (1.8 to 19.1) | 0.004 |

CI, Confidence Interval; DCAT, DriveABLE™ Cognitive Assessment Tool; EQ-VAS, EQ Visual Analog Scale; HE, Hepatic Encephalopathy; MHE, Minimal Hepatic Encephalopathy; MoCA, Montreal Cognitive Assessment; OR, Odds Ratio; PHES, Psychometric Hepatic Encephalopathy Score; SIMARD MD, Screen for the Identification of Cognitively Impaired Medically At-Risk Drivers, a Modification of the DemTect; Standard Deviation; TUG, Timed Up and Go

**Supplementary Table 3 – Predictors of indeterminate/fail versus pass on the computerized DriveABLE™ Cognitive Assessment Tool (DCAT) (multivariate logistic regression)\***

|  |  |  |
| --- | --- | --- |
| **Variable** | **OR (95% CI)** | **P value** |
| *PHES as a continuous score* | | |
| Age (years) | 1.3 (1.1 to 1.5) | 0.001 |
| PHES continuous score | 0.6 (0.5 to 0.8) | 0.005 |
| *Stroop as a continuous score* | | |
| Age (years) | 1.3 (1.1 to 1.5) | 0.001 |
| Stroop continuous score | 1.1 (1.0 to 1.1) | 0.001 |
| *MHE by Stroop dichotomized (MHE yes versus no)* | | |
| Age (years) | 1.3 (1.1 to 1.5) | 0.001 |
| Abnormal Stroop | 32.9 (4.9 to 221.1) | 0.001 |
| *MHE by PHES dichotomized (MHE yes versus no)* | | |
| Age (years) | 1.3 (1.2 to 1.5) | 0.001 |
| Abnormal PHES | 11.0 (2.3 to 51.8) | 0.002 |
| *MHE by Stroop/PHES dichotomized (MHE yes versus no)* | | |
| Age (years) | 1.3 (1.2 to 1.5) | 0.001 |
| Abnormal PHES and Stroop | 11.0 (2.3 to 51.8) | 0.002 |

\*Adjusted for frailty (Timed Up and Go score), history of overt HE, MoCA score

DCAT, DriveABLE™ Cognitive Assessment Tool; MHE, Minimal Hepatic Encephalopathy; MoCA, Montreal Cognitive Assessment; PHES, Psychometric Hepatic Encephalopathy Score; OR, Odds Ratio