# **SUPPLEMENTARY MATERIAL**

## **Table 1** Demographics by recruitment site

|  |  |  |
| --- | --- | --- |
|  | Royal London Hospital | Salford Royal Hospital |
| Age | 41 (14) | 46 (14) |
| Male | 118 (77) | 51 (59) |

Data are reported as number (%) or number (standard deviation)

## **Table 2** Screened and excluded patients with reasons for exclusion, by recruitment site

|  |  |  |
| --- | --- | --- |
| Reason | Royal London | Salford Royal |
| Total | 261 | 166 |
| >24 hrs since head injury | 51 (19.5) | 26 (15.8) |
| Other | 48 (18.4) | 37 (22.4) |
| >80 years old | 39 (14.9) | 34 (20.6) |
| Substance dependence | 30 (11.5) | 15 (9.1) |
| Advanced airway management | 20 (7.7) | 0 (0) |
| Forehead abrasion preventing electrode application | 19 (7.3) | 12 (7.3) |
| Psychiatric medications | 14 (5.4) | 9 (5.5) |
| Neurological disorder | 14 (5.4) | 25 (15.2) |
| <18 years old | 11 (4.2) | 1 (0.6) |
| CVA/TIA < 1yr | 4 (1.5) | 1 (0.6) |
| History of brain surgery | 4 (1.5) | 0 (0) |
| Prisoner | 2 (0.8) | 1 (0.6) |
| Procedural sedation medications | 2 (0.8) | 0 (0) |
| Headache | 1 (0.4) | 1 (0.6) |
| Pregnant | 1 (0.4) | 0 (0) |
| Syncope | 1 (0.4) | 2 (1.2) |
| Dialysis | 0 (0) | 1 (0.6) |

Data are reported as number (%)

## **Table 3** Sensitivity analysis of TBI patients with GCS 13-15

|  |  |  |  |
| --- | --- | --- | --- |
|  | TBI group, GCS 13-15  (n=186) | | |
| Baseline | 72 hours | *P* value (95% CI) |
| SAC | 25 (23-27) | 25 (22-27) | 0.3 (-0.4 to 1.2) |
| CSI | 9 (4-23) | 5 (1-18) | 0.004 (1.2 to 6.3) |
| Total number symptoms | 4 (2-8) | 3 (1-6) | 0.009 (0.2 to 1.6) |

GCS, Glasgow Coma Score; SAC, standardised assessment of concussion; CSI, concussion symptom inventory; IQR, interquartile range. Maximum SAC score possible is 30, indicating best neurocognitive function; maximum CSI score is 72, indicating maximum symptom severity, and maximum number of symptoms possible is 12. Data are reported as median (interquartile range).

## **Table 4** Sensitivity analysis of TBI patients with GCS 14-15

|  |  |  |  |
| --- | --- | --- | --- |
|  | TBI group, GCS 14-15  (n=183) | | |
| Baseline | 72 hours | *P* value (95% CI) |
| SAC | 25 (23-27) | 25 (22-27) | 0.15 (-0.4 to 1.2) |
| CSI | 9 (4-21) | 5 (1-18) | 0.002 (1.2 to 6.3) |
| Total number symptoms | 4 (2-8) | 3 (1-6) | 0.009 (0.2 to 1.6) |

GCS, Glasgow Coma Score; SAC, standardised assessment of concussion; CSI, concussion symptom inventory; IQR, interquartile range. Maximum SAC score possible is 30, indicating best neurocognitive function; maximum CSI score is 72, indicating maximum symptom severity, and maximum number of symptoms possible is 12. Data are reported as median (interquartile range).

## **Table 5** Analysis of TBI patients with GCS 14-15 that did not have a positive CT head scan (either negative scan or no scan done)

|  |  |  |  |
| --- | --- | --- | --- |
|  | TBI group, GCS 14-15  CT not done or done and no acute intracranial haemorrhage  N=162 | | |
|  | Baseline | 72 hours | *P* value (95% CI) |
| SAC | 26 (23-27) | 25 (22-27) | 0.19 (-0.5 to 1.2) |
| CSI | 9 (4-19) | 5 (1-15) | 0.003 (0.9 to 6.3) |
| Total number symptoms | 4 (2-7) | 3 (1-6) | 0.013 (0.2 to 1.7) |

TBI, traumatic brain injury; CT, computed tomography; GCS, Glasgow Coma Score; SAC, standardised assessment of concussion; CSI, concussion symptom inventory; IQR, interquartile range. Maximum SAC score possible is 30, indicating best neurocognitive function; maximum CSI score is 72, indicating maximum symptom severity, and maximum number of symptoms possible is 12. Data are reported as median (interquartile range).

## **Table 6** Analysis of TBI patients with GCS 14-15 that had a negative CT head scan

|  |  |  |  |
| --- | --- | --- | --- |
|  | TBI group, GCS 14-15  CT done and no acute intracranial haemorrhage,  N=75 | | |
| Baseline | 72 hours | *P* value (95% CI) |
| SAC | 25 (22-26) | 25 (22-28) | 0.92 (-1.5 to 1.4) |
| CSI | 14 (8-32) | 13 (5-27) | 0.16 (-1.5 to 9.0) |
| Total number symptoms | 6 (4-10) | 5 (3-8) | 0.36 (-0.7 to 1.9) |

TBI, traumatic brain injury; CT, computed tomography; GCS, Glasgow Coma Score; SAC, standardised assessment of concussion; CSI, concussion symptom inventory; IQR, interquartile range. Maximum SAC score possible is 30, indicating best neurocognitive function; maximum CSI score is 72, indicating maximum symptom severity, and maximum number of symptoms possible is 12. Data are reported as median (interquartile range).

## **Table 7** Analysis of TBI patients that completed outcome assessments at both baseline and follow up (longitudinal patients)

|  |  |  |  |
| --- | --- | --- | --- |
|  | TBI group  Outcome measures completed at baseline and follow up  (n=99) | | |
| Baseline | 72 hours | *P* value (95% CI) |
| SAC | 25 (23-27) | 25 (22-27) | 0.14 (-0.4 to 1.2) |
| CSI | 9 (4-23) | 5 (1-15) | 0.002 (1.2 to 6.3) |
| Total number symptoms | 4 (2-8) | 3 (1-6) | 0.009 (0.23 to 1.6) |

TBI, traumatic brain injury; SAC, standardised assessment of concussion; CSI, concussion symptom inventory; IQR, interquartile range. Maximum SAC score possible is 30, indicating best neurocognitive function; maximum CSI score is 72, indicating maximum symptom severity, and maximum number of symptoms possible is 12. Data are reported as median (interquartile range).

## **Table 8** Analysis of TBI patients that had had one or more previous head injuries compared to those that had had no previous head injuries.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | TBI & previous head injury (n=63) | | | TBI & no previous head injury (n=111) | | |
|  | Baseline | 72 hours | *P* value (95%CI) | Baseline | 72 hours | *P* value (95%CI) |
| SAC | 25 (23-28) | 25 (22-28) | 0.43 (-1.4 to 1.3) | 26 (23-27) | 24 (22-27) | 0.21 (-0.4 to 1.7) |
| CSI | 11 (5-24) | 5 (2-13) | 0.25 (-1.8 to 7.8) | 9 (4-19) | 5 (0-19) | 0.001 (1.3 to 7.3) |
| Total no. symptom | 5 (2-8) | 3 (1-6) | 0.8 (-0.8 to 1.7) | 4 (2-8) | 4 (0-6) | 0.002 (0.4 to 2.0) |

TBI, traumatic brain injury; SAC, standardised assessment of concussion; CSI, concussion symptom inventory; IQR, interquartile range. Maximum SAC score possible is 30, indicating best neurocognitive function; maximum CSI score is 72, indicating maximum symptom severity, and maximum number of symptoms possible is 12. Data are reported as median (interquartile range).

## **Table 9** Analysis of TBI split into subgroups of those that had intracranial haemorrhage on CT, those that had no intracranial haemorrhage on CT and those that did not have a CT.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | CT +  n=25 | | | CT –  n=78 | | | CT not done  n=86 | | |
| Baseline | 72 hrs | *P* value (95%CI) | Baseline | 72 hrs | *P* value (95%CI) | Baseline | 72 hrs | *P* value (95%CI) |
| SAC | 23 (22-26) | 22 (19-24) | 0.5  (-0.6 to 1.7) | 25 (22-26) | 25 (22-28) | 0.80  (-1.5 to 1.4) | 26 (25-28) | 26 (23-27) | 0.11  (-0.3 to 1.8) |
| CSI | 20 (11-30) | 15 (6-21) | 0.3  (-0.5 to 3.4) | 13 (7-32) | 13 (5-27) | 0.16  (-1.5 to 9) | 6 (3-11) | 2 (0-5) | 0.002  (1.2 to 5.7) |
| Total no. symptoms | 8 (4-9) | 6 (5-9) | 0.14  (-0.1 to 0.9) | 6 (3-10) | 5 (3-8) | 0.34  (-0.7 to 1.9) | 3 (1-5) | 1 (0-4) | 0.005  (0.4 to 2.1) |

CT+, intracranial haemorrhage on CT; CT-, no intracranial haemorrhage on CT; CT, computed tomography; SAC, standardised assessment of concussion; CSI, concussion symptom inventory; IQR, interquartile range. Maximum SAC score possible is 30, indicating best neurocognitive function; maximum CSI score is 72, indicating maximum symptom severity, and maximum number of symptoms possible is 12. Data are reported as median (interquartile range).