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Physicians' understanding of the Glasgow Coma Score and the effect of a scoring aid

Submission date
20/06/2023

Recruitment status
No longer recruiting

Registration date
21/06/2023

Overall study status
Completed

Last Edited
15/01/2025

Condition category
Signs and Symptoms

[_] Prospectively registered
[X] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
The Glasgow Coma Scale (GCS) is a way for doctors to check how awake and aware someone is after an injury or illness. It looks at three things: how well they open their eyes, how they respond when spoken to, and how they move. Doctors give a score based on these things, with higher scores meaning the person is more conscious and aware.
In this study, researchers want to test if using a scoring aid can help doctors assess the Glasgow Coma Score (GCS) more accurately and quickly in adult patients who are in a coma. They will create a simulated situation that closely resembles a real clinical setting. The study will also assess how well doctors understand and use the GCS in terms of evaluating and applying it in clinical practice.

Who can participate?
Medical doctors, serving as resident physicians in various medical specialities such as intensive care medicine, emergency medicine, internal medicine, and neurology

What does the study involve?
Participants in this study will be asked to evaluate the Glasgow Coma Score (GCS) of a simulated adult patient who has a GCS score of 8. The participating doctors will be randomly assigned to receive or not receive a scoring aid (a GCS scoring card) that gives detailed information on how to assess and score each part of the GCS based on the patient's condition. The GCS assessments will be recorded on video and audio. The recordings will be analyzed by two investigators to measure the time it takes to complete the GCS assessment, the accuracy of the scores, whether the eye, verbal, and motor responses are checked correctly, the number of commands or attempts to check specific GCS components, and the use of pain stimulation. After the assessment, the doctors will answer a questionnaire to evaluate their understanding of the GCS, including how to assess it, interpret the scores, and use it in clinical practice. The main things the researchers are interested in are how long it takes to do the GCS assessments and how accurate they are. The doctors' understanding of the GCS will also be looked at as a secondary outcome.

What are the possible benefits and risks of participating?
Potential benefits for the participant is gaining experience and training for the assessment and clinical use of the GCS.
No risks.

Where is the study run from?
The University Hospital Basel (Switzerland)

When is the study starting and how long is it expected to run for?
January 2019 to July 2023

Who is funding the study?
The University Hospital Basel (Switzerland)

Who is the main contact?
Prof. Raoul Sutter, raoul.sutter@usb.ch

Contact information

Type(s)
Principal Investigator

Contact name
Prof Raoul Sutter

ORCID ID
http://orcid.org/0000-0002-6575-356X

Contact details
Petersgraben 4
Universitätsspital Basel
Basel
Switzerland
4031
+41 613287928
Raoul.Sutter@usb.ch

Additional identifiers

EudraCT/CTIS number
Nil known

IRAS number

ClinicalTrials.gov number
Nil known

Secondary identifying numbers
Protocol01/2019

Study information

Scientific Title
Physicians' understanding of the Glasgow Coma Score and the effect of a scoring aid: a simulator-based randomized controlled trial

Study objectives
We hypothesize that (first) the assessment of the Glasgow Coma Score is optimized in terms of accuracy and duration of assessment when using a scoring aid and (second) there is inadequate understanding of the Glasgow Coma Score among physicians regarding its assessment, interpretation and clinical application

Ethics approval required
Ethics approval not required

Ethics approval(s)
According to the local ethics committee, this is not a study subject to approval according to cantonal and federal legislation, as the study project is not defined as a research project under the Human Research Act Article 2. However, upon review of the request, the local ethics committee (EKNZ BASEC Nr. Requ_2019-00168) can ascertain that this study complies with the general ethical principles for research involving human subjects (according to the article 51(2) of the Human Research Act). In addition, consent was received from the volunteering physicians.

Study design
Observational cohort study

Primary study design
Observational

Secondary study design
Cohort study

Study setting(s)
Hospital

Study type(s)
Screening

Participant information sheet
Not available in web format, please use the contact details to request a participant information sheet

Health condition(s) or problem(s) studied
Physicians' understanding of the Glasgow Coma Score

Interventions
A cohort of volunteer medical doctors, serving as resident physicians in various medical specialties such as intensive care medicine, emergency medicine, internal medicine, and neurology. They are required to assess the GCS of an adult individual simulating a GCS score of 8 (comprising a best eye response of 1, best verbal response of 2, and best motor response of 5)

at the high-fidelity simulator center in the University Hospital Basel, a Swiss academic medical facility. The participating physicians are randomly assigned to either receive or not receive a scoring aid (i.e., GCS scoring card) containing comprehensive information on all constituent components and their corresponding scoring based on the clinical presentation. The GCS assessment is thereby recorded by video and audio. All recordings are anonymously analyzed by two investigators regarding the following predefined variables: duration of complete GCS assessment, measured GCS, eye response checked correctly, verbal response checked correctly, motor response checked correctly, number of commands and/or attempts to heck specific GCS components, application of pain stumi. Immediately following the GCS assessment, the physicians complete a predefined questionnaire to evaluate their comprehension of the GCS, specifically concerning its assessment, interpretation, and clinical application. The primary outcomes of interest are the duration and accuracy of the GCS assessments. The physicians' understanding of the GCS with regards to its assessment, interpretation, and clinical applications is considered as secondary outcome.

Intervention Type
Other

Primary outcome measure
Duration and accuracy of the assessment of the Glasgow Coma Score (GCS) of a simulated coma with a GCS of 8. Duration of GCS assessment will be assessed from the timepoints of first contact with the patients until stating the measured score to the instructor in mounts. GCS assessment will be rated as accurate if the GCS stated by the participants is 8. All other measured GCS will be rated as inaccurate.

Secondary outcome measures
Understanding of the Glasgow Coma Score among physicians regarding its assessment, interpretation and clinical application. Therefore participants will complete a prewritten questionnaire which asks the following questions:
1. Their stress level during the simulation (rated from 1 [no stress] to 10 [maximally stressed])?
2. How confident they are that the assessed GCS is accurate (rated from 0 [not confident at all] to 10 [very confident])?
3. If they use the GCS in daily clinical practice - yes or no?
4. If a GCS scoring card was felt to be missing (for participants who did not receive a scoring card) - yes or no?
5. Which of the GCS from 3 to 15 or which GCS range would be difficult to adequately assess without a scoring aid?
6. Which of the three GCS components (i.e., eye, verbal, motor response) is the most difficult to assess?
7. Which is the highest GCS an intubated patient can present
8. Does a patient with a GCS <9 have to be intubated in any case?

The physicians will be finally asked to rate expected probability of a discordant GCS assessment by other physicians for the identical simulated scenarios using a probability score ranging from 0% denoting “not existing” to 100% indicating the “highest probability”.

Overall study start date
03/01/2019

Completion date
30/07/2023

Eligibility

Key inclusion criteria
Volunteering and consenting medical doctors working as resident physicians in different medical fields, including intensive care medicine, emergency medicine, internal medicine, and neurology

Participant type(s)
Health professional

Age group
Adult

Lower age limit
25 Years

Sex
Both

Target number of participants
100

Total final enrolment
109

Key exclusion criteria
Physicians already having participated in the same simulated clinical scenario

Date of first enrolment
21/03/2019

Date of final enrolment
23/07/2023

Locations

Countries of recruitment
Switzerland

Study participating centre
University Hospital Basel
Petersgraben 4
Basel
Switzerland
4031

Sponsor information

Organisation
University Hospital of Basel

Sponsor details
Petersgraben 4
Basel
Switzerland
4031
+41 012652525
Raoul.Sutter@usb.ch

Sponsor type
Hospital/treatment centre

Website
https://www.unispital-basel.ch/

ROR
https://ror.org/04k51q396

Funder(s)

Funder type
Hospital/treatment centre

Funder Name
Universitätsspital Basel

Alternative Name(s)
University Hospital Basel, University Hospital of Basel, The University Hospital Basel, Hôpital Universitaire de Bâle, L'Hôpital universitaire de Bâle, Das Universitätsspital Basel, UHB

Funding Body Type
Government organisation

Funding Body Subtype
Other non-profit organizations

Location
Switzerland

Results and Publications

Publication and dissemination plan
We plan to publish our results in a peer-reviewed journal.

Intention to publish date
01/08/2023

Individual participant data (IPD) sharing plan
The dataset generated during and/or analyzed during the current study will be available upon request from the principal investigator (Raoul Sutter, MD)
raoul.sutter@usb.ch

IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Protocol file			23/08/2023	No	No
Results article		12/12/2024	15/01/2025	Yes	No