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Introduction:
Cognitive dysfunction is a major factor leading to disability and poor quality of life in ICU survivors. In order to identify patients at risk for developing cognitive dysfunction due to critical illness or ICU treatment, one has to discriminate between patients with pre-existing cognitive dysfunction and those developing new cognitive dysfunction or worsening of cognitive function during ICU treatment. We investigated the incidence of pre-existing cognitive dysfunction in ICU patients using the Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE) and its relation with delirium during ICU treatment.

Methods:
Patients relatives were asked to fill in the IQCODE on admission. An overall score on cognitive dysfunction was calculated by the average of the score on each item of the questionnaire. The incidence of delirium was based on the CAM-ICU score. Statistical analysis was performed using the Fisher’s exact test. P-values of less then 0.05 were deemed significant.

Results:
In total 452 consecutive patients admitted to our ICU were analyzed, of whom 47.8% (n=216) showed decline in cognitive function prior to ICU admission. Cognitive function was divided in four groups; no change 52.2% (n=236), slight decline 34.1% (n=154), moderate decline 9.7% (n=44) and severe decline 4.0% (n=18) (figure 1). Incidence of delirium is shown in figure 2. Patients with moderate to severe cognitive dysfunction showed significant more delirium during ICU treatment than patients with no change in cognition (44.2% and 21.1% respectively, (p=0.023)).

Conclusion:
Almost half of the patients admitted to the ICU have cognitive dysfunction prior to ICU admission. To assess ones cognitive function after ICU treatment one has to take in to account the patients pre-existing cognitive functioning. Patients with a moderate to severe pre-existing cognitive dysfunction develop significantly more delirium during ICU treatment.

Image 1:
Figure 1 – Cognitive functioning in patients prior to ICU admission.

Figure 2 – Patients with delirium vs no delirium in different groups of cognitive functioning.