

Cognitive impairments 6 and 12 months after ICU-admission in COVID-19 patients

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Background

The most severely ill COVID-19 patients need intensive care treatment and often mechanical ventilation because of respiratory failure. It is well documented that severe illness treated in the intensive care unit (ICU) can lead to long lasting and complex symptoms. Among the most reported symptoms are cognitive impairments, such as memory loss and lack of concentration and approximately 25% of ICU-patients experience symptoms months after discharge.

Objectives

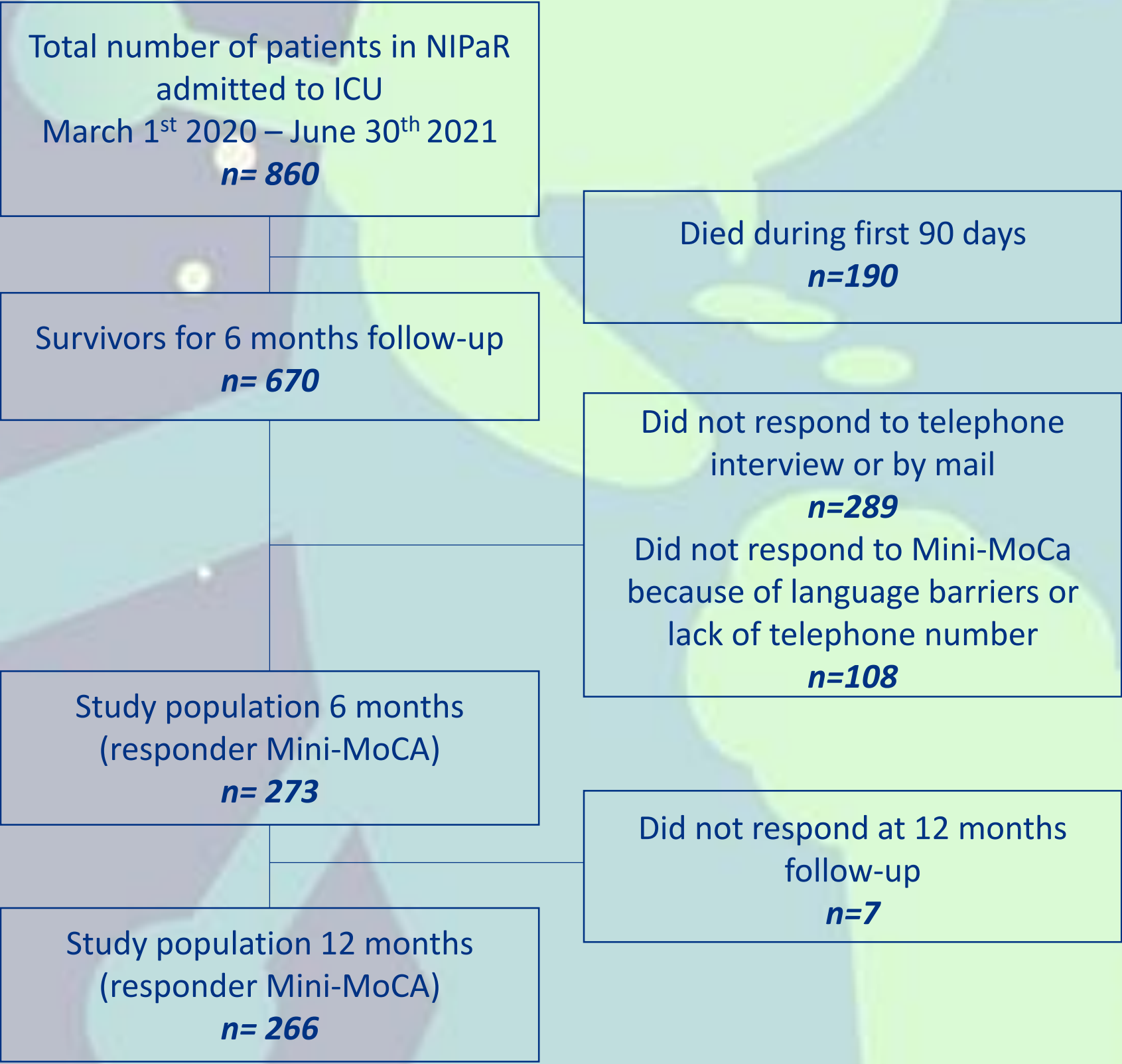
- Investigate the prevalence of cognitive impairments at 6 and 12 months after ICU-admission in adult COVID-19 survivors registered in the Norwegian Intensive Care and Pandemic Registry (NIPaR)
- Investigate predictive factors for cognitive impairments defined as a total score under 11 in Mini-MoCA

Methods

- Prospective observational study
- Data collected from NIPaR and telephone interview
- Statistical analyses: Logistic regression and binominal distribution approximation

Results

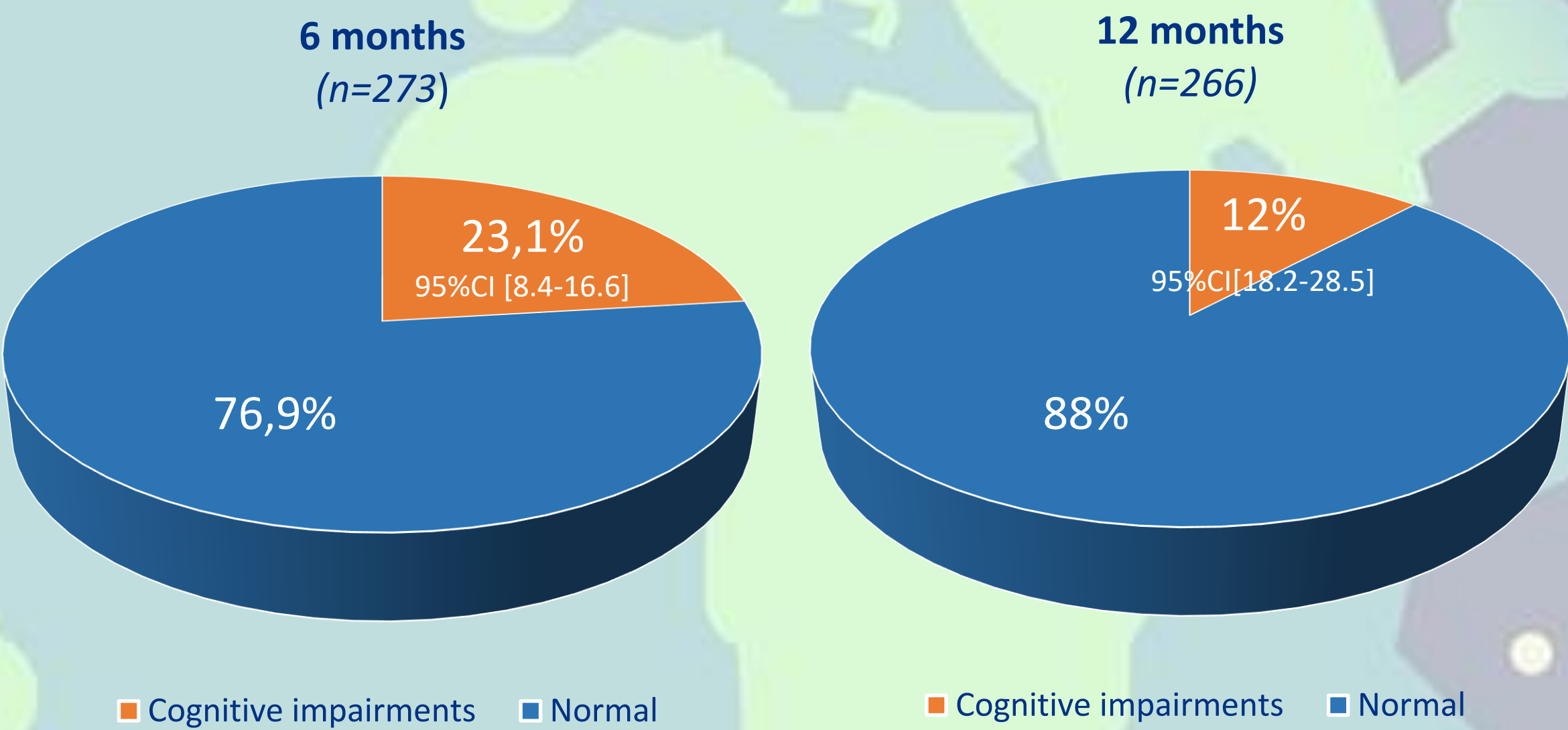
Flowchart



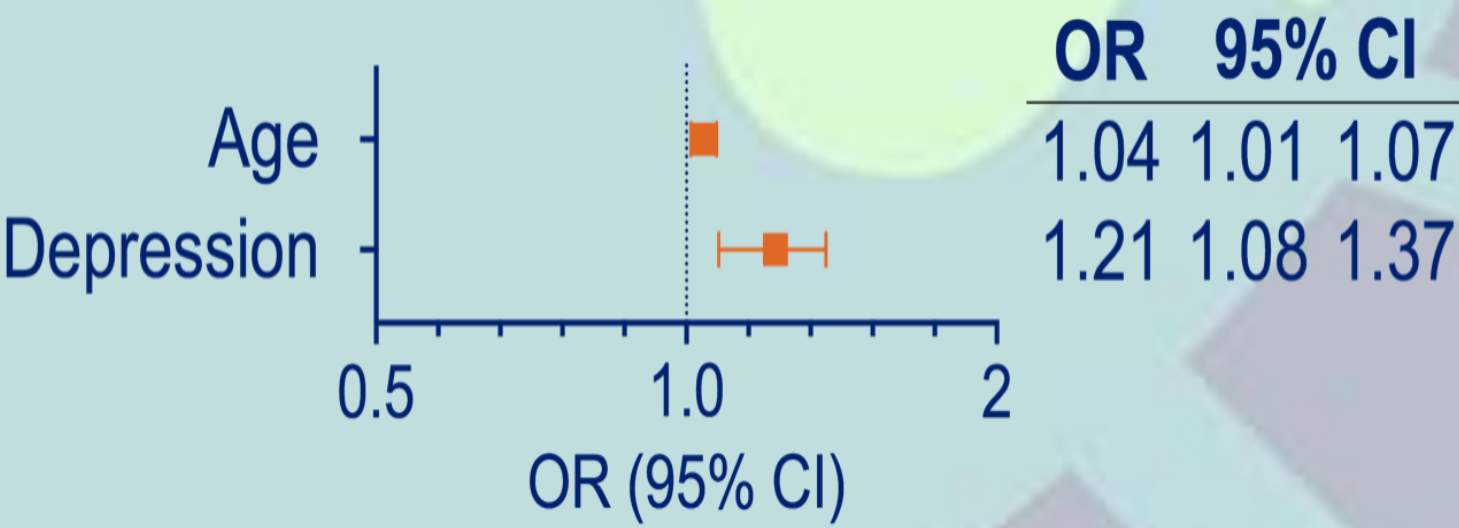
Clinical characteristics of the study sample at time of ICU admission (n=273)	n	%	Median (range)
Age			57 (30-88)
Gender			
Female	81	29.7	
Male	192	70.3	
BMI (kg/m²)	193		29.1 (18.8-58.1)
Peripheral oxygen-saturation (%)	249		90 (11-100)
Respiration rate (per minute)	266		26 (8-78)
SAPS II score	273		31 (6-72)
ICU length of stay (days)	273		11.6 (0.5-75.1)
Received mechanical ventilation (respirator and/or NIV)	237	86.8	
Time on invasive mechanical ventilation (days)	216		8.3 (0.8-69.5)
Any risk factor			
Yes	200	73.3	
No	73	26.7	
Risk factors*			
Cardiovascular disease	106	38.8	
Obesity	67	24.5	
Asthma	48	17.6	
Diabetes Mellitus I or II	38	13.9	
Other	79	21.7	

*Some have more than one risk factor

Prevalences of cognitive impairments



Predictive factors for having cognitive impairments at 6 months



Conclusion

There is a significant decrease in the prevalence of cognitive impairments from 6 to 12 months after ICU admission, indicating that cognitive impairments improve over time. Older age and having symptoms of depression were found to be predictive factors for having cognitive impairments at 6 months. Information about improvement over time is important both for the general public, general practitioners and rehabilitation services. Patients in this study have received various degrees of rehabilitation, but this was not found as a predictive factor for improvement. Future research should include baseline levels and more detailed information about length and type of rehabilitation.