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Recovery after in-hospital delirium: long-term changes in frailty and cognition after COVID-19

Conclusion and implications

- In-hospital delirium was associated with long-term cognitive decline.
- In-hospital delirium was not associated with increased levels of frailty or mortality at follow-up.
- Future studies should evaluate the added value of follow-up consultations to assess cognitive decline after in-hospital delirium.

Background

- Delirium is a common complication in older hospitalized patients with acute infections, such as COVID-19.
- Delirium is associated with short-term functional and cognitive decline. Long-term clinical outcomes in patients with COVID-19 remain unclear.

Objectives

To evaluate whether in-hospital delirium is associated with:

- Mortality
- Changes in frailty
- Changes in cognition

Approximately two years after hospitalization for COVID-19 infection in patients ≥70 years of age.

Methods

- Patients ≥70 years who survived hospitalization due to COVID-19 were included from two Dutch multicenter studies: the COVID-OLD and CliniCo study.
- The prevalence of in-hospital delirium was assessed using the Delirium Observation Screening Scale (DOSS).
- Follow-up data was collected by phone approximately two years after hospital discharge.
- Frailty was measured with the Clinical Frailty Scale (CFS).
- Change in cognition was assessed with the Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE) very short version.
- Multivariable regression models were used to study the possible association between in-hospital delirium and mortality at follow-up, change in frailty and change in cognition.

Results

1. Baseline and follow-up characteristics

- Prevalence **in-hospital delirium:** 62/436 = 14.2%
- Male: 65.4%
- Median age at hospitalization: 75.0 years old [IQR: 73.0-80.0]
- Deceased during follow-up: 35.3% vs. 52.3% (no delirium vs. delirium)
- Cognitive decline at follow-up: 38.6% vs. 57.9% (no delirium vs. delirium)
- Increased CFS at follow-up: 41.8% vs 52.8% (no delirium vs. delirium)

2. Mortality at follow-up

Table 1. Multivariable analyses for the possible association of delirium and mortality at follow-up (n=615)

	Mortality at follow-up	
	OR	95% CI
In-hospital delirium	**1.41**	**0.85 ; 2.35**
Age	1.07	1.03 ; 1.11
Woman	0.73	0.49 ; 1.09
Cohort	0.92	0.61 ; 1.37
Baseline CFS	1.74	1.53 ; 1.97
ICU admission	0.97	0.45 ; 2.10

3. Changes in frailty

Table 2. Multivariable analyses for the possible association of in-hospital delirium and changes in frailty (n=364)

	Change in CFS*	
	B	95% CI
In-hospital delirium	**0.41**	**-0.07 ; 0.90**
Age	0.02	-0.01 ; 0.06
Woman	0.24	-0.09 ; 0.56
Cohort	-0.03	-0.50 ; 0.45
ICU admission	0.07	-0.49 ; 0.62
Follow-up period	-0.01	-0.05 ; 0.04

***Change in CFS was was defined as the calculated difference between the Clinical Frailty Scale pre-COVID-19 and the CFS at follow-up.**

4. Changes in cognition

Table 3. Multivariable analyses for the possible association of in-hospital delirium and changes in cognition (n=312)

	Change in cognition*	
	B	95% CI
In-hospital delirium	**2.31**	**0.89 ; 3.72**
Age	0.10	-0.004 ; 0.20
Sex	-0.41	-1.43 ; 0.60
Cohort	0.56	-0.89 ; 2.01
Baseline CFS	0.36	-0.02 ; 0.73
ICU admission	-0.99	-2.65 ; 0.68
Follow-up period	-0.02	-0.17 ; 0.12

***Change in cognition was assessed with the IQCODE. The IQCODE is designed to assess changes in cognition and ranges from 7 (much better) to 35 (much worse).**

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