

Old benefit as much as young stroke patients from high-intensity neurorehabilitation: cohort analysis

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Supplementary material

Cohort characteristics

Table S1 provides further demographical and clinical information about the cohort. Statistical comparisons showed that the distribution of gender differed between the three groups ($X^2=8.73$, $P=.003$). The proportion of patients with aphasia did not significantly differ between the groups ($X^2=1.65$, $P=.44$), and neither did the distribution of stroke subtype as indicated by the ICD diagnosis ($X^2=3.10$, $P=.21$).

<i>Age group</i>	<i>Gender</i>		<i>Diagnosis (ICD-Code)</i>		<i>Aphasia</i>	
	<i>M</i>	<i>F</i>	<i>I63</i>	<i>I64</i>	<i>Yes</i>	<i>No</i>
<i>Middle-Aged</i>	44%	56%	89%	11%	33%	67%
<i>Old</i>	52%	48%	90%	10%	35%	65%
<i>Very Old</i>	50%	50%	93%	7%	33%	67%

Table S1: Distribution of gender, diagnosis codes and prevalence of aphasia.

Functional status at admission and after four week of inpatient rehabilitation

Complementary analyses on the functional status at admission and after four weeks of treatment are reported in the following.

Functional status at admission (BI total score) differed significantly between the three age groups (Kruskal-Wallis, $X^2=18.12$, $df=2$, $P=0.001$, see Table S2). Very old patients were

admitted with a lower score on the BI than middle-aged and old patients. In contrast, the functional status of middle-aged and old patients on admission did not differ significantly.

An effect of age group was also found for functional status (raw BI total score) after four weeks of inpatient stay ($X^2=17.86$, $df=2$, $P=0.001$). This effect was again driven by a significantly lower functional status in the very old patient group compared to the middle-aged and old groups, which in turn did not significantly differ.

<i>Age group</i>	<i>Mean (±SD)</i>	<i>Main Effect of group</i>		<i>Pair-wise comparison</i>	
		<i>X²</i>	<i>P</i>	<i>Pair</i>	<i>P</i>
<i>Functional Status at Admission</i>					
<i>Middle-aged</i>	37.75 (±27.1)	18.12	0.001	<i>vs Old</i>	0.39
<i>Old</i>	39.12 (±27.8)			<i>vs Very old</i>	0.01
<i>Very Old</i>	32.95 (±26.9)			<i>vs Middle-aged</i>	0.01
<i>Functional Status after 4 Weeks</i>					
<i>Middle-aged</i>	52.55 (±30.4)	17.86	0.001	<i>vs Old</i>	0.31
<i>Old</i>	54.06 (±31.3)			<i>vs Very old</i>	0.01
<i>Very Old</i>	47.12 (±31.0)			<i>vs Middle-aged</i>	0.01

Table S2: Functional status on admission and after four weeks of neurorehabilitation

Proportion of functional deterioration during rehabilitation

The proportion of patients who deteriorated functionally, presumably because of medical complications, as reflected in a decrease the Barthel Index was 5.6% in our sample, and did

not differ significantly between the age groups (middle aged: 5.9%, old: 5.9%, very old 4.2%, $X^2=2.07$, $P=.36$).

Length of stay and therapy intensity

One-way ANOVAs were conducted to compare the length of stay in inpatient neurorehabilitation and the daily amount of therapy (during the analysed first four weeks of inpatient stay) between the three age groups. Both, therapy intensity and length of stay differed significantly between the groups (see Table S3). Post-hoc pairwise comparison confirmed that middle-aged patients stayed longer and received more therapy during the initial four week of stay, than old patients, who in turns stayed longer and had a higher therapy intensity than very old patients (all $P_s >.001$).

<i>Age group</i>	<i>Daily amount of therapy (in min)</i>			<i>Length of stay (in days)</i>		
	<i>Mean (±SD)</i>	<i>F</i>	<i>P</i>	<i>Mean (±SD)</i>	<i>F</i>	<i>P</i>
<i>Middle-Aged</i>	127 (±38)	46.06	0.001	59 (±31)	30.86	0.0001
<i>Old</i>	118 (±33)			51 (±19)		
<i>Very Old</i>	106 (±28)			48 (±16)		

Table S3: Therapy intensity and length of stay. The average daily amount of neurorehabilitation therapy admitted to patients in the first four week of inpatient stay (excluding nurse-delivered activation training) is presented in the left column. The right column shows the average length of total inpatient stay of patients in each age group.