

Cerebrovascular diseases 1

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Efficiency of rehabilitation after stroke:

A multifactor analysis

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Background and aims: The high prevalence of strokes makes the rehabilitation after stroke an important task. To better allocate the resources we need to understand the factors influencing the efficiency of rehabilitation in different time periods. In the previous study (Akhmadeeva L. R. et al, Effectiveness of rehabilitation after stroke in the hospital: quantitative analysis of motor function recovery, Problems of balneology, physiotherapy, and exercise therapy, 2019, 40, p. 4-9) we compared patients in acute stroke unit and rehabilitation ward. This study discusses patients in the early rehabilitation state (first six months after the stroke)

Methods: N=548 in-patients, (320 males and 228 females) were studied in the rehabilitation wards of two hospitals in Ufa, Russia. The average age was 65.5 years, standard deviation 10.8. Hospital A staff participated in a long-term training program. Rivermead Index change and other parameters were measured. Power was >0.999 for medium effects ($r=0.3$) and 0.65 for small effects ($r=0.1$) (5% level).

Results: We found a significant improvement in the Rivermead index after rehabilitation. Gender, the duration of hospital stay or the time after stroke did not have noticeable effect on the outcome. The improvement at the hospital with the specially trained staff is 1.08 points higher than at the other hospital. Younger age, better initial state or ischemic (as opposite to hemorrhagic) stroke had small positive effects.

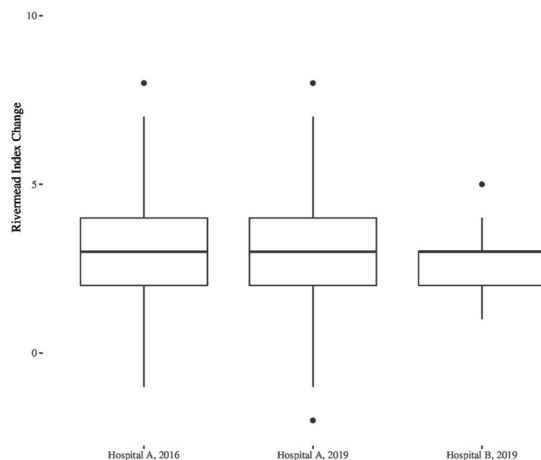


Figure 1: Average change in Rivermead Index

Average change in Rivermead Index

Table 1: Change in Rivermead Index for Different Hospitals

Hospital	Number of patients	Mean change	Standard deviation
Hospital A, 2016	104	3.11	2.29
Hospital A, 2019	410	3.11	1.93
Hospital B, 2019	34	2.76	1.13

Change in Rivermead Index for Different Hospitals

Table 2: Factors of patients' improvement

Factor	Change in Rivermead Index Improvement			p
	Mean	95% Interval		
		Min	Max	
Hospital B as compared to Hospital A	-1.0802	-1.8005	-0.3598	3.38×10^{-3}
Age (per year)	-0.0225	-0.0401	-0.0049	1.25×10^{-2}
Male sex	0.1345	-0.2295	0.4985	4.68×10^{-1}
Initial Rivermead Index	0.2208	0.1353	0.3062	5.67×10^{-7}
Days in rehab	0.0246	-0.0393	0.0885	4.50×10^{-1}
Ischemic stroke as compared to Hemorrhagic stroke	0.4745	0.0028	0.9462	4.87×10^{-2}
Days before rehab	-0.0004	-0.0036	0.0027	7.81×10^{-1}

Factors of patients' improvement

Conclusion: Rehabilitation is beneficial for all stroke patients. The effect of patients' age and initial state is quite small. Training of hospital staff is important for the rehabilitation.

Disclosure: Nothing to disclose