

Stroke rehabilitation and patients with multimorbidity: a systematic scoping review

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Background

Stroke is a complex health event due to the wide range of associated physical and cognitive impairments. Stroke care presents challenges for clinicians as most strokes occur in the context of other medical diagnoses. Indeed, research indicates that a stroke occurs in isolation (no co-occurring conditions) in up to 6% of patients [1, 2]. The precise nature and prevalence of these other chronic conditions have not been clearly reported. This is problematic for the design of stroke clinical practice recommendations. Although it may be expected (based on prevalence data) that multimorbid patients were included in reported rehabilitation intervention studies, by not having an explicit understanding of the patients included or excluded in the evidence, we may be faced with a mismatch between the participant groups used to generate evidence, the best practice recommendations, and the patient seen in practice.

Study Purpose

The purpose of this scoping review is to document the extent to which multimorbidity is included in stroke rehabilitation evidence, and to identify the associated gaps in the evidence pertaining to stroke rehabilitation and multimorbidity.

Methods

This study is a systematic scoping review.

Electronic databases (Medline, Embase, AMED, PsycInfo, CINAHL, Scopus, Sport Discus and Cochrane) were searched using a combination of terms related to 'stroke' and 'rehabilitation'.

Selection criteria were designed to capture studies with stroke patients in inpatient rehabilitation. Screening and assessment for eligibility were conducted by a single reviewer, with pilot tests for inter-rater reliability (kappa=0.75) and quality checks throughout. Although study design was not an exclusion criterion, articles were classified by design and only RCTs were abstracted — other study designs were marked for possible follow-up syntheses. Studies were then categorized according to the Evidence-Based Review of Stroke Rehabilitation modules. Content analysis of exclusion criteria was conducted using Charlson comorbidities and other common conditions.

Results

The database search yielded 10771 articles. Screening and assessment of eligibility resulted in 438 RCTs included in the study. The median number of participants per study was 40. Only 2% of studies explicitly included patients with stroke and another condition, and approximately 15% did not exclude patients with comorbidities.

Summary of the Literature Included



438 articles

- <1980 = 5
- <1990 = 14 total [9]
- <2000 = 64 total [50]
- <2010 = 265 total [201]
- ≥2010 = 173

Median Year: 2008 (Mean Year: 2006)



1.2 days to 66 months

Range of average time post stroke



39.1 days

Median time post stroke (mean 158.8)

- 69% between 1 week and 12 weeks
- 7 articles under 1 week
- 44 articles over 1 year



57% male, 43% female



64 years

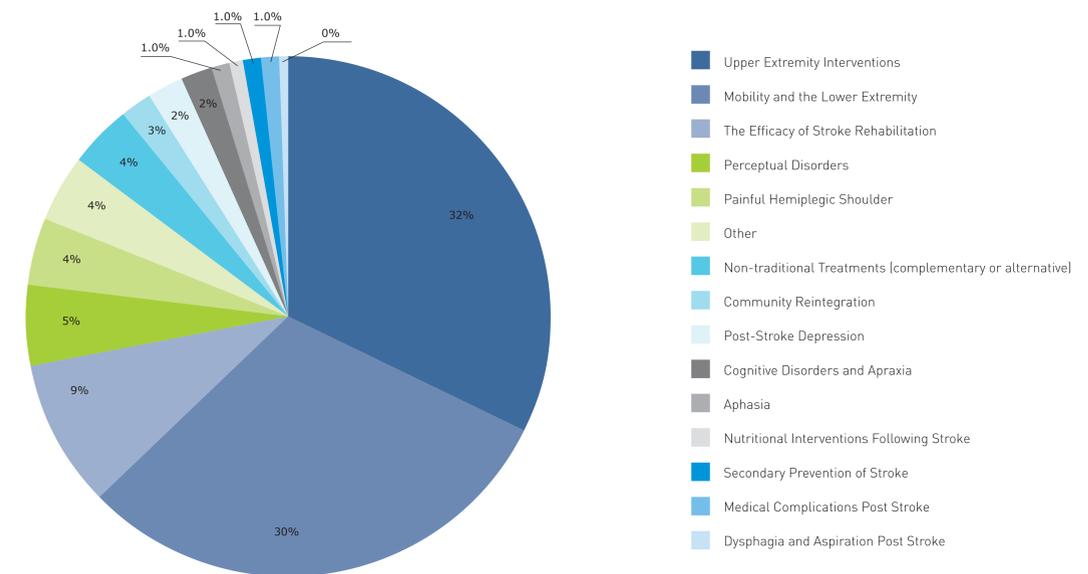
Median age (mean 64.05)

- 45% of studies report an average participant age of > 65 years
- 7% of studies report an average participant age of > 75 years

Does enrolment criteria permit enrolment of patients with multimorbidity?

	A	B	C	D	E	F
	Explicitly included (e.g. stroke + CPD as inclusion criteria)	Included (i.e. not explicitly excluded)	Excludes patient with generally poor cognitive ability	Explicitly excludes patient with prior stroke (include first stroke only)	Explicitly excludes Charlson diseases/condition	Explicitly excludes other diseases/condition
%	1%	15%	54%	37%	24%	83%
n	3	67	237	160	105	362

What types of interventions were in the sample?



What types of multimorbidity related exclusions are being made? Example: upper extremity interventions

	C	D	E	F
	Excludes patient with generally poor cognitive ability	Explicitly excludes patient with prior stroke (include first stroke only)	Explicitly excludes Charlson diseases/condition	Explicitly excludes other diseases/condition
32.4%	59% (n = 82)	45% (n = 63)	14% (n = 19)	83% (n = 116)

What conditions are being excluded from the studies? Example: upper extremity interventions

Dementia = 8
Diabet* = 1
Cancer = 0
Cardi* = 27
Heart = 3
Pulm* = 3

Liver = 0
Ulcer = 2
Hemiplegia = 3
Renal = 1
Tumor = 1
Leukemia = 0

AIDS = 0
Connective tissue = 0

What conditions are being excluded from the studies? Example: upper extremity interventions

Morbid = 16
Stable = 17
Cognitive = 33
Aphasia = 23
Hypertension = 7
Spast* = 24

Neuro* = 35
Ortho* = 14
Psychiatric = 5
Joint = 14
Skin = 7
Epilepsy or seizure = 23

Conclusions

This review represents the first attempt to map literature on stroke rehabilitation related to co/multimorbidity, and identify gaps in existing research. The results are relevant for researchers, clinicians, and policy-makers concerned about current evidence for stroke patients with multimorbidity. Future work should focus on incorporating results into best practice recommendations for stroke rehabilitation.

Acknowledgment

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References
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