

Stroke Current Awareness Bulletin

August 2020

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Title: Advance Directives in the Neurocritically Ill: A Systematic Review.

Source: Critical care medicine; Aug 2020; vol. 48 (no. 8); p. 1188-1195

Author(s): Sutter, Raoul; Meyer-Zehnder, Barbara; Baumann, Sira M; Marsch, Stephan; Pargger, Hans

Objectives: To determine the frequency of advance directives or directives disclosed by healthcare agents and their influence on decisions to withdraw/withhold life-sustaining care in neurocritically ill adults.

Data Sources: PubMed, Embase, and Cochrane databases.

Study Selection: Screening was performed using predefined search terms to identify studies describing directives of neurocritically ill patients from 2000 to 2019. The review was registered prior to the screening process (International Prospective Register of Systematic Reviews identification number 149185).

Data Extraction: Data were collected using standardized forms. Primary outcomes were the frequency of directives and associated withholding/withdrawal of life-sustaining care.

Data Synthesis: Out of 721 articles, 25 studies were included representing 35,717 patients. The number of studies and cohort sizes increased over time. A median of 39% (interquartile range, 14-72%) of patients had directives and/or healthcare agents. The presence of directives was described in patients with stroke, status epilepticus, neurodegenerative disorders, neurotrauma, and neoplasms, with stroke patients representing the largest subgroup. Directives were more frequent among patients with neurodegenerative disorders compared with patients with other illnesses ($p = 0.043$). In reference to directives, care was adapted in 71% of European, 50% of Asian, and 42% of American studies, and was withheld or withdrawn more frequently over time with a median of 58% (interquartile range, 39-89%). Physicians withheld resuscitation in reference to directives in a median of 24% (interquartile range, 22-70%).

Conclusions: Studies regarding the use and translation of directives in neurocritically ill patients are increasing. In reference to directives, care was adapted in up to 71%, withheld or withdrawn in 58%, and resuscitation was withheld in every fourth patient, but the quality of evidence regarding their effects on critical care remains weak and the risk of bias high. The limited number of patients having directives is worrisome and studies aiming to increase the use and translation of directives are scarce. Efforts need to be made to increase the perception, use, and translation of directives of the neurocritically ill.

Title: Association Between Stroke and Parkinson's Disease: a Meta-analysis.

Citation: Journal of molecular neuroscience : MN; Aug 2020; vol. 70 (no. 8); p. 1169-1176

Author(s): Liu, Yumei; Xue, Li; Zhang, Yingying; Xie, Anmu

Abstract: Parkinson's disease (PD) and stroke are both associated with aging, but the relationship between these two disorders remains unclear. Recent evidence has shown that they frequently co-occur and are influenced by each other, although some studies have found inconsistent results. We performed this meta-analysis of patients with PD on stroke risk to clarify the relationship between these two disorders on the basis of the studies published from 1975 to July 2019 in the PubMed, EMBASE, and Cochrane Library databases. In total, 13 case-control studies met the inclusion criteria for meta-analysis. The pooled odds ratio (OR) for PD in relation to the stroke risk was 1.72 (95% confidence interval (CI) 1.19-2.49). The OR for the presence of cerebral infarct among PD in the four studies was 1.35 (95% CI 1.04-1.74). Moreover, the OR for the presence of stroke pathology among PD in the four postmortem studies was 1.86 (95% CI 1.17-2.98). In conclusion, our meta-analysis suggests that there is an association between stroke and PD. Sensitivity analysis was used to test the robustness of our results through the sequential removal of each one study at time, in order to investigate if a single study was driving the study results. These results indicate that PD and stroke may have a common pathogenesis and may share preventive treatment measures.

Title: Cognitive, physical, and psychological benefits of yoga for acquired brain injuries: A systematic review of recent findings.

Citation: Neuropsychological rehabilitation; Aug 2020; vol. 30 (no. 7); p. 1388-1407

Author(s): Silveira, Kristen; Smart, Colette M

Abstract: Yoga is a holistic practice that - when incorporated effectively into neurorehabilitation - has potential to meet the complex needs of persons with acquired brain injury (ABI). This systematic review, conducted in accordance with PRISMA guidelines, investigated cognitive, physical, and psychological outcomes following controlled trials of yoga for ABI. The search returned six eligible studies, four of which focused specifically on stroke rehabilitation. For persons with ABI broadly, within-group improvements were found after yoga for psychological and physical adjustment, quality of life, and respiratory functioning. For stroke specifically, physical and memory recovery was greater in the yoga group vs. exercise control, and within-group improvements were noted for motor functioning, self-efficacy, and quality of life outcomes. Lack of (1) between-group analyses despite the inclusion of control groups, and (2) a common yoga rehabilitation protocol including frequency, length, and duration of yoga must be addressed in future research to establish efficacy of these interventions. Considerations for psychophysiological outcome measures and cultural factors are presented in the context of future research and clinical directions.

Community-Based Interventions for Stroke Provided by Nurses and Community Health Workers: A Review of the Literature.

Citation: The Journal of neuroscience nursing : journal of the American Association of Neuroscience Nurses; Aug 2020; vol. 52 (no. 4); p. 152-159

Author(s): Magwood, Gaynell S; Nichols, Michelle; Jenkins, Carolyn; Logan, Ayaba; Qanungo, Suparna; Zigbuo-Wenzler, Enia; Ellis, Charles

Background: Community-based interventions are vital for facilitating poststroke recovery, increasing community participation, and raising awareness about stroke survivors. To optimize recovery and community reintegration, there is a need to understand research findings on community-based interventions that focus on stroke survivors and their caregivers. Although nurses and community health workers (CHWs) are commonly involved in community-based interventions, less is known about their roles relative to other poststroke rehabilitation professionals (physical therapists, occupational therapists, and speech-language pathologists). Thus, the purpose of this review is to explore research focused on improving community-based stroke recovery for adult stroke survivors, caregivers, or both when delivered by nurses or CHWs.

Methods: A systematic review using Scopus, PubMed, EBSCOhost, MEDLINE, CINAHL Complete, and PsycInfo was completed to identify community-based poststroke intervention studies using nurses or CHWs through August 2018.

Results: Eighteen studies meeting inclusion criteria from 9 countries were identified. Details regarding nurses' and CHWs' roles were limited or not discussed. Interventions emphasized stroke survivor self-care and caregiver support and were offered face-to-face and in group sessions in the community and home. A wide range of instruments were used to measure outcomes. The results of the interventions provided were mixed. Improvements were observed in perceptions of health, quality of life, knowledge, self-efficacy, self-management, and caregiver support.

Conclusion: Nurses and CHWs play a pivotal role in community-based care. Evidence suggests community-based interventions facilitate the necessary support for stroke survivors, caregivers, families, and communities to optimize stroke recovery. Data from this review illustrate a continued need for comprehensive programs designed to address the complex needs of stroke survivors and families when they return to their homes and communities.

Title: Early mobilisation post-stroke: a systematic review and meta-analysis of individual participant data.

Citation: Disability and rehabilitation; Jul 2020 ; p. 1-8

Author(s): Rethnam, Venesha; Langhorne, Peter; Churilov, Leonid; Hayward, Kathryn S; Herisson, Fanny; Poletto, Simone R; Tong, Yanna; Bernhardt, Julie

Purpose: To investigate the safety and efficacy of early mobilisation (EM) compared to usual care by meta-analysing individual participant data (IPD).

Materials and Methods: IPD were sought from randomised controlled trials comparing out-of-bed mobilisation starting within 48 h from stroke onset to usual care for acute stroke patients. Six trials were sourced from a recent Cochrane review. Favourable outcome (modified Rankin Scale 0-2) and death at 3 months post-stroke were compared between both groups using mixed-effect logistic regression modelling. Adjusted odds ratios (aORs) with respective 95% confidence intervals (95%CI) were reported.

Results: Out of 2630 participants, 1437 (54.6%) were assigned to EM and 1193 (45.4%) to usual care. Intervention protocols varied considerably between trials. The median (interquartile range) delay to starting mobilisation post-stroke onset was 20 h (14.5-23.8) for EM and 23 h (16.7-34.3) for usual care group. Fewer EM participants had a favourable outcome at 3 months post-stroke compared to the usual care group (678 [48%] vs. 611 [52%]; aOR = 0.75, 95%CI: 0.62-0.92, p = 0.005). No difference in death at 3 months post-stroke between EM and usual care was observed (102 [7%] vs. 84 [7%]; aOR = 1.46, 95%CI: 0.92-2.31, p = 0.108).

Conclusion: The commencement of mobilisation should only be considered after 24 h post-stroke. Further research is required to identify safe, optimal dose, and timing of EM post-stroke.

Implications for Rehabilitation: Patients who commenced mobilisation early after stroke had worse outcome than usual care. Insufficient detail about mobilisation interventions or usual care in many studies limits any further interpretation. The commencement of mobilisation should only be considered after 24-h post-stroke.

Title: Effectiveness of respiratory muscle training for pulmonary function and walking ability in patients with stroke: A systematic review with meta-analysis

Citation International Journal of Environmental Research and Public Health; Aug 2020; vol. 17 (no. 15); p. 1-22

Author(s): Pozuelo-Carrascosa D.P.; Carmona-Torres J.M.; Cobo-Cuenca A.I.; Laredo-Aguilera J.A.; Latorre-Roman P.A.; Parraga-Montilla J.A.

Background: Neurological dysfunction due to stroke affects not only the extremities and trunk muscles but also the respiratory muscles.

Aim(s): to synthesise the evidence available about the effectiveness of respiratory muscle training (RMT) to improve respiratory function parameters and functional capacity in poststroke patients.

Method(s): a systematic electronic search was performed in the MEDLINE, EMBASE, SPORTDiscus, PEDro and Web of Science databases, from inception to May 2020. Study selection and data extraction: randomised controlled trials (RCTs) that examined the effects of RMT versus non-RMT or sham RMT in poststroke patients. We extracted data about respiratory function, respiratory muscle strength and functional capacity (walking ability, dyspnea, balance, activities of daily life), characteristics of studies and features of RMT interventions (a type of RMT exercise, frequency, intensity and duration). Two reviewers performed study selection and data extraction independently.

Result(s): nineteen RCTs met the study criteria. RMT improved the first second forced expiratory volume (FEV1), forced vital capacity (FVC), peak expiratory flow (PEF), maximal expiratory pressure (MEP), maximal inspiratory pressure (MIP) and walking ability (6 min walking test), but not Barthel index, Berg balance scale, and dyspnea.

Conclusion(s): RMT interventions are effective to improve respiratory function and walking ability in poststroke patients.

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Factors associated with medication persistence among ischemic stroke patients: a systematic review.

Citation: Neurological research; Jul 2020; vol. 42 (no. 7); p. 537-546

Author(s): Jang, Dong Eun; Zuñiga, Julie Ann

Objective: An investigation of the prevalence of medication persistence and associated factors in order to inform effective strategies for improving medication persistence.

Methods: A systematic review of the literature from 2010 to the present was performed, using the PRISMA protocol. Primary and empirical observational studies of adult ischemic stroke or transient ischemic attack patients were included. PubMed, CINAHL, Web of Science, Cochrane Library, and PsycInfo databases were searched using the key terms stroke, ischemic stroke, medication persistence, medication adherence, and patient compliance.

Results: Of four hundred twenty-eight journal articles retrieved, a final 18 articles were included. Short-term medication persistence was 46.2-96.7%, and long-term medication persistence was 41.7-93.0%. Identified hospital-related factors for medication persistence were stroke unit care, in-hospital medical complications, and early follow-up visit. Demographic factors for medication persistence were older age, and high/adequate financial status; disease-related factors were disease history, stroke subtype, and symptom severity. Age less than 75, female sex, comorbidity, antiplatelet medication switch, and polypharmacy were identified as factors of medication nonpersistence.

Conclusions: Stroke patients' medication persistence decreases over time, and persistence on antiplatelets, anticoagulants, and statin was poor. Several factors were associated with medication persistence, and these factors should be considered in future secondary preventative strategies.

Title: Fatal intracranial haemorrhage occurring after oral anticoagulant treatment initiation for secondary stroke prevention in patients with atrial fibrillation.

Citation: European journal of neurology; Aug 2020; vol. 27 (no. 8); p. 1612-1617

Author(s): Tsivgoulis, G; Katsanos, A H; Seiffge, D J; Paciaroni, M; Wilson, D; Koga, M; Macha, K; Cappellari, M; Kallmünzer, B; Polymeris, A A; Toyoda, K; Caso, V; Werring, D J; Engelter, S T; De Marchis, G M; RAF, RAF-DOAC, CROMIS-2, SAMURAI, NOACISP, Erlangen, Verona registry collaborators

Background and Purpose: In this pooled analysis of seven multicentre cohorts potential differences were investigated in the incidence, characteristics and outcomes between intracranial haemorrhages (ICHs) associated with the use of non-vitamin K antagonist oral anticoagulants (NOAC-ICH) or with vitamin K antagonists (VKA-ICH) in ischaemic stroke patients after oral anticoagulant treatment initiation for atrial fibrillation (AF).

Methods: Data from 4912 eligible AF patients who were admitted in a stroke unit with ischaemic stroke or transient ischaemic attack and who were treated with either VKAs or NOACs within 3 months post-stroke were included. Fatal ICH was defined as death occurring during the first 30 days after ICH onset. A meta-analysis of available observational studies reporting 30-day mortality rates from NOAC-ICH or VKA-ICH onset was additionally performed.

Results: During 5970 patient-years of follow-up 71 participants had an ICH, of whom 20 were NOAC-ICH and 51 VKA-ICH. Patients in the two groups had comparable baseline characteristics, except for the higher prevalence of kidney disease in VKA-ICH patients. There was a non-significant higher number of fatal ICH in patients with VKAs (11 events per 3385 patient-years) than in those with NOACs (three events per 2623 patient-years; hazard ratio 0.32, 95% confidence interval 0.09-1.14). Three-month functional outcomes were similar ($P > 0.2$) in the two groups. The meta-analysis showed a lower 30-day mortality risk for patients with NOAC-ICH compared to VKA-ICH (relative risk 0.70, 95% confidence interval 0.51-0.95).

Conclusions: Non-vitamin K oral anticoagulants for intracranial haemorrhages and VKA-ICH occurring during secondary stroke prevention of AF patients have comparable baseline characteristics and outcomes except for the risk of fatal ICH within 30 days, which might be greater in VKA-ICH.

Title: Genome-Wide Association Study Meta-Analysis of Stroke in 22 000 Individuals of African Descent Identifies Novel Associations With Stroke.

Citation: Stroke; Aug 2020; vol. 51 (no. 8); p. 2454-2463

Author(s): Keene, Keith L; Hyacinth, Hyacinth I; Bis, Joshua C; Kittner, Steven J; Mitchell, Braxton D; Cheng, Yu-Ching; Pare, Guillaume; Chong, Michael; O'Donnell, Martin; Meschia, James F; Chen, Wei-Min; Sale, Michèle M; Rich, Stephen S; Nalls, Mike A; Zonderman, Alan B; Evans, Michele K; Wilson, James G; Correa, Adolfo; Markus, Hugh S; Traylor, Matthew; Lewis, Cathryn M; Carty, Cara L; Reiner, Alexander; Haessler, Jeff; Langefeld, Carl D; Gottesman, Rebecca; Mosley, Thomas H; Woo, Daniel; Yaffe, Kristine; Liu, YongMei; Longstreth, William T; Psaty, Bruce M; Kooperberg, Charles; Lange, Leslie A; Sacco, Ralph; Rundek, Tatjana; Lee, Jin-Moo; Cruchaga, Carlos; Furie, Karen L; Arnett, Donna K; Benavente, Oscar R; Grewal, Raji P; Peddareddygar, Leema Reddy; Dichgans, Martin; Malik, Rainer; Worrall, Bradford B; Fornage, Myriam; COMPASS, SiGN, and METASTROKE Consortia

Background and Purpose: Stroke is a complex disease with multiple genetic and environmental risk factors. Blacks endure a nearly 2-fold greater risk of stroke and are 2x to 3x more likely to die from stroke than European Americans.

Methods: The COMPASS (Consortium of Minority Population Genome-Wide Association Studies of Stroke) has conducted a genome-wide association meta-analysis of stroke in >22 000 individuals of African ancestry (3734 cases, 18 317 controls) from 13 cohorts.

Results: In meta-analyses, we identified one single nucleotide polymorphism (rs55931441) near the HNF1A gene that reached genome-wide significance ($P=4.62\times10^{-8}$) and an additional 29 variants with suggestive evidence of association ($P<1\times10^{-6}$), representing 24 unique loci. For validation, a look-up analysis for a 100 kb region flanking the COMPASS single nucleotide polymorphism was performed in SiGN (Stroke Genetics Network) Europeans, SIGN Hispanics, and METASTROKE (Europeans). Using a stringent Bonferroni correction P value of 2.08×10^{-3} (0.05/24 unique loci), we were able to validate associations at the HNF1A locus in both SiGN ($P=8.18\times10^{-4}$) and METASTROKE ($P=1.72\times10^{-3}$) European populations. Overall, 16 of 24 loci showed evidence for validation across multiple populations. Previous studies have reported associations between variants in the HNF1A gene and lipids, C-reactive protein, and risk of coronary artery disease and stroke. Suggestive associations with variants in the SFXN4 and TMEM108 genes represent potential novel ischemic stroke loci.

Conclusions: These findings represent the most thorough investigation of genetic determinants of stroke in individuals of African descent, to date.

Title: Impact of visuospatial neglect post-stroke on daily activities, participation and informal caregiver burden: A systematic review.

Source: Annals of physical and rehabilitation medicine; Jul 2020; vol. 63 (no. 4); p. 344-358

Author(s): Bosma, Martine S; Nijboer, Tanja C W; Caljouw, Monique A A; Achterberg, Wilco P

Objectives: Visuospatial neglect (VSN) is a common cognitive disorder after stroke. The primary aim of this systematic review was to provide an overview of the impact of VSN in 3 aspects: (1) activities of daily living (ADL), (2) participation, and (3) caregiver burden. The second aim was to investigate the differences in studies focusing on populations with mean age<65 versus \geq 65 years.

Methods: PubMed, EMBASE, Web of Science, Cochrane Library, Emcare, PsychINFO, Academic Search Premier and CENTRAL were searched systematically. Quality was assessed with the Mixed Methods Appraisal Tool.

Results: Of the 115 included studies, 104 provided outcomes on ADL, 15 on participation (4 studies with mean age \geq 65), and 2 on caregiver burden (1 study with mean age \geq 65). Quality assessment yielded scores ranging from 0 to 100%. VSN had a negative impact on ADL (i.e., independence during ADL and performance in self-care, household tasks, reading, writing, walking, wheelchair navigation) and participation (i.e., driving, community mobility, orientation, work). The impact of VSN on fulfilling social roles was unclear. VSN had a negative effect on caregiver burden. We found no clear age-related differences.

Conclusions and Implications: VSN has a negative impact not only on patients' independence but particularly on the performance of ADL. Despite the far fewer studies of VSN as compared with ADL, VSN also seems to hamper participation and increase caregiver burden, but further research is needed. Because of the large impact, VSN should be systematically and carefully assessed during rehabilitation. A considerable number of different instruments were used to diagnose VSN. Diagnosing VSN at more than one level [function (i.e., pen-and-paper test), activities, and participation] is strongly recommended. Consensus is needed on how to assess VSN and its negative impact for research and rehabilitation practice.

Systematic Review Registration No Prospero: Registration No. CRD42018087483.

Title: Prevalence and Management Challenges in Central Post-Stroke Neuropathic Pain: A Systematic Review and Meta-analysis.

Citation: Advances in therapy; Jul 2020; vol. 37 (no. 7); p. 3278-3291

Author(s): Liampas, Andreas; Velidakis, Nikolaos; Georgiou, Tiffany; Vadalouca, Athina; Varrassi, Giustino; Hadjigeorgiou, Georgios M; Tsivgoulis, Georgios; Zis, Panagiotis

Introduction: Central post-stroke pain (CPSP) is defined as the neuropathic pain that arises either acutely or in the chronic phase of a cerebrovascular event and is a result of central lesions of the somatosensory tract. The aim of this systematic review and meta-analysis was to establish the

prevalence of CPSP, to describe its characteristics, and to discuss the associated management challenges.

Methods: After a systematic Medline search, we identified 69 papers eligible to be included. **Results:** The pooled prevalence of CPSP in patients with stroke at any location was 11% (95% CI 7-18%), which can increase to more than 50% in the subgroups of patients with medullary or thalamic strokes. CPSP onset coincides with stroke occurrence in 26% of patients (95% CI 18-35%); CPSP manifests within a month since symptom onset in 31% of patients (95% CI 22-42%), and occurs between the first month and the first year in 41% of patients (95% CI 33.9-49.0%). CPSP develops more than 12 months after stroke onset in 5% of patients (95% CI 3-8%).

Conclusions: Clinicians should look for any evidence of central neuropathic pain for at least 12 months after stroke. Both pharmacological and non-pharmacological interventions can be used for the management of CPSP. Lamotrigine has the strongest evidence (Level II of evidence, derived from small randomized controlled trials) for being effective in the management of CPSP. Future research should focus on well-designed trials of pharmacological and non-pharmacological interventions aiming to relieve CPSP, which is a very common but often neglected pain syndrome.

Title: Quality of Life and Resilience of Patients With Juvenile Stroke: A Systematic Review

Citation: Journal of Stroke and Cerebrovascular Diseases; Oct 2020; vol. 29 (no. 10)

Author(s): Bartholome L.; Winter Y.

Background: The incidence of juvenile stroke is increasing. Considering younger age of patients and the potential long-lasting disability, the consequences of juvenile stroke may have a greater societal impact than those of stroke in elder population.

Method(s): A systematic review was performed in order to evaluate quality of life in juvenile stroke. All studies on quality of life in juvenile stroke published in PUBMED before March 1st, 2020. The search terms were "stroke", "juvenile", "young", "adult", "quality of life" and "resilience" were considered. After the abstract evaluation of 748 hits only six studies we identified as appropriate for the review. The age criterion for juvenile stroke was set as 55 years and younger.

Result(s): The studies have shown a decline of quality of life in at least 46% of patients with juvenile stroke. On average, quality of life was reduced by 37%. The following domains as measured on SF-36 were particularly impaired: physical role, physical functioning and emotional role. The factors influencing the quality of life in juvenile stroke were ability to return to work, post-stroke depression, functional outcome, level of education and age of stroke onset.

Conclusion(s): This systematic review shows a decline of quality of life in patients with juvenile stroke. Rehabilitation programs should consider the factors influencing quality of life in these patients in order to improve outcome of juvenile stroke. Patients who are unable to return to work should receive necessary social support. In addition, our data underline the importance of screening procedures for post-stroke depression in this population. Copyright © 2020 Elsevier Inc.

Title: Statin Therapy in Ischemic Stroke Models: A Meta-Analysis.

Citation: Translational stroke research; Aug 2020; vol. 11 (no. 4); p. 590-600

Author(s): Christophe, Brandon; Karatela, Maham; Sanchez, Joanly; Pucci, Josephine; Connolly, E Sander

Abstract: Statins, drugs known for lipid lowering capabilities and reduction of cardiovascular disease, have demonstrated neuroprotective effects following ischemic stroke in retrospective clinical and animal studies. However, dosing (methods, time, type of statin, and quantity) varies across studies, limiting the clinical applicability of these findings. Furthermore, a comprehensive review of statins in edema and blood-brain barrier (BBB) breakdown is needed to provide insight on diverse, less explored neuroprotective effects. In the present study, we conduct a meta-analysis of publications evaluating statin administration in animal models of ischemic stroke. We review statins' most effective dosing regimen in four outcomes-infarct, edema, BBB breakdown, and functional outcome-to characterize several parameters of benefit associated with statin administration. A search term was constructed to identify experimental murine studies exploring statin use after transient middle cerebral artery occlusion (tMCAO) in PubMed, Web of Science, and Embase. Extracted data included statin type, dose, time and method of administration, and the four predetermined outcomes (functional outcome, edema, BBB breakdown, and infarction). A meta-analysis and stratified meta-regression were conducted using the standardized mean difference (SMD) method for continuous measurements. Included publications were assessed for

bias using SYRCLE's RoB tool for animal studies. A total of 24 studies were included. Statin administration significantly reduced infarct volume ($p < 0.0001$), edema volume ($p < 0.002$), and neurological deficit ($p < 0.0001$). Simvastatin and pravastatin were most effective in reducing infarct volume when compared with atorvastatin ($p = 0.0475$, $p = 0.0004$) and rosuvastatin ($p = 0.0036$, $p < 0.0001$). Pravastatin outperformed all others in functional outcome. Subcutaneous (SC) injection was most effective in all outcomes. Statin therapy reduced BBB breakdown according to our systematic review. Mean study quality was 4.6/10. While statin therapy evidently improves neurological outcome following ischemic stroke, this analysis adds to our understanding of dosing and statins' effects on edema and BBB breakdown. These findings will aid the design of future studies investigating statin use and have larger implications for the clinical care of ischemic stroke patients.

Title: The Gugging Swallowing Screen in dysphagia screening for patients with stroke: A systematic review.

Citation: International journal of nursing studies; Jul 2020; vol. 107 ; p. 103588

Author(s): Park, Ki Deok; Kim, Tae Hee; Lee, Seon Heui

Background: Dysphagia in patients with stroke can cause serious complications, such as aspiration and pneumonia, that often lead to increase in mortality and length of hospitalization. Several screening tests for dysphagia have been developed and are used in clinical practice to prevent dysphagia complications. The Gugging Swallowing Screen is 1 such screening test. It is suggested for use in the assessment of the ability of patients to swallow fluid and non-fluid foods separately. It also promotes effective communication between healthcare providers.

Objectives: We aimed to investigate the validity and benefit of the Gugging Swallowing Screen.

Design: This was a systematic review.

Data Source: We sourced data from electronic databases including Ovid MEDLINE, Ovid EMBASE, the Cochrane Library, KoreaMed, Research Information Sharing Service, and Korean studies Information Service System.

Review Methods: We conducted a systematic review of electronic databases. We included studies published in English and Korean up to November 2018 that pertained to the Gugging Swallowing Screen. We designed strategies that included Medical Subject Headings and keywords, such as "dysphagia," "swallowing," "assessment," "screening," and "GUSS," used alone or in combination.

Results: Of the 297 studies that appeared in the search result, 219 articles were reviewed by 2 independent reviewers after duplicate studies were eliminated. Finally, 8 articles were included in this study. With regard to validity, the Gugging Swallowing Screen had a pooled sensitivity of 0.97 (95% confidence interval: 0.93-0.99), a pooled specificity of 0.67 (95% confidence interval: 0.59-0.74), and an area under the receiver operating characteristic curve of 0.9381. With regard to benefit, early systematic dysphagia screening using Gugging Swallowing Screen performed by nurses reduced both screening time and pneumonia rate compared to the control group ($p = 0.004$). The incidence of X-ray-verified pneumonia was significantly lower in the Gugging Swallowing Screen group than in the clinical screening group ($p < 0.01$), but no significant difference was observed in the incidence of pneumonia compared to the value predicted using the 10 mL water swallowing test.

Conclusions: The Gugging Swallowing Screen is a reliable and sensitive tool for screening dysphagia. Early and systematic assessment can prevent aspiration and pneumonia. However, further studies are needed to confirm the effectiveness of this tool.

Title: What Interventions Do Physical Therapists Provide for Patients With Cardiorespiratory Conditions, Neurological Conditions, and Conditions Requiring Acute Hospital Care? A Systematic Review.

Citation: Physical therapy; Jul 2020; vol. 100 (no. 7); p. 1180-1205

Author(s): Zadro, Joshua R; Cheng, Sonia; O'Keeffe, Mary; Maher, Christopher G

Objective: The aim of this systematic review was to determine what percentages of physical therapists provide interventions that are of high value, low value, or unknown value for cardiorespiratory conditions, neurological conditions, or conditions requiring acute hospital care. Whether an intervention was considered high or low value was determined by reference to guidelines or systematic reviews.

Methods: Searches of numerous databases were performed by combining terms synonymous with "practice patterns" and "physical therapy" until April 2018. Studies that investigated what interventions physical therapists provide for any cardiorespiratory condition, neurological condition, or condition requiring acute hospital care through surveys and audits of clinical notes were included. Through the use of medians and interquartile ranges, the percentages of physical therapists who provided interventions that were of high value, low value, or unknown value were summarized.

Results: Twenty-six studies were included. The median percentages of physical therapists who provided interventions of high, low, and unknown value for chronic obstructive pulmonary disease ranged from 78% to 96%, 67% to 100%, and 56% to 91%, respectively. These percentages ranged from 61% to 97%, 87% to 98%, and 83% to 98% for adults who were critically ill in intensive care units; 70% to 93%, 38% to 50%, and 8% to 95% before or after cardiac/thoracic surgery; 25% to 96%, 23% to 84%, and 96% for acute stroke; and 11% (high value) and 13% (unknown value) for Parkinson disease, respectively.

Conclusions: This review found patterns of physical therapist practice for cardiorespiratory conditions, neurological conditions, and conditions requiring acute hospital care that were both evidence based and not evidence based. A concern is that a substantial percentage of physical therapists provided interventions that were of low or unknown value despite the availability of high-value interventions.

Impact: This systematic review is the first, to our knowledge, to summarize the percentage of physical therapist treatment choices that were high versus low value for cardiorespiratory conditions, neurological conditions, and conditions requiring acute hospital care. The findings highlight areas of practice where low-value care could be replaced with high-value care-such as in the management of patients who have chronic obstructive pulmonary disease or who are in intensive care-and identify an urgent need to develop and test strategies to ensure that patients with these conditions receive the interventions most likely to improve their outcomes.

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