

Applying Clinical Practice Guidelines to the Complex Patient: Insights for Practice and Policy from Stroke Rehabilitation

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Abstract

In Canada, policy makers are working to align services with the Stroke Rehabilitation Best Practice Recommendations (SRBPR). Complicating the application of clinical practice guidelines (CPGs) is the fact that most strokes occur in the context of other diagnoses. We sought to understand clinicians' use of the CPGs and ascertain how much guidance regarding multimorbidity was available in the SRBPR. Study results indicated that using the recommendations was problematic due to a perceived lack of guidance regarding comorbidities and multimorbidity, and concerns regarding the applicability to "real-life patients." Comorbidities were mentioned in less than half of the recommendations, but no explicit guidance was provided regarding the management of comorbidities. Given the prevalence of multimorbidity in stroke rehabilitation, this clinical context is ideal for development and testing of CPGs that account for multimorbidity and other complexity factors. Results may also suggest limitations to using CPGs in the development of activity-based funding models.

Introduction

Mr. Prince is a 78-year-old man with type 2 diabetes, hypertension, renal insufficiency, osteoarthritis (with bilateral total knee replacements) and generalized anxiety. He has been admitted to an inpatient stroke rehabilitation unit following his stroke. Mr. Prince sustained substantial functional impairments from

his stroke, and the rehabilitation team must develop a treatment plan that meets his needs for functional improvement in the context of his co-occurring diseases.

There are 50,000 new stroke cases each year in Canada, with a combined direct and indirect cost of \$2 billion annually (Lindsay 2014), and considerable challenges to providing high-quality care. In over 80% of cases, a stroke occurs alongside other serious medical diagnoses (Ostwald et al. 2008), and patients like Mr. Prince are the norm rather than the exception in stroke rehabilitation. On average, patients have five comorbid conditions, such as hyperlipidemia, diabetes and hypertension (Fisher et al. 2006; Johansen et al. 2006; Karatepe et al. 2008; Liu et al. 1999). In addition to multiple chronic conditions, patients may also experience psychosocial challenges, often leading to care complexity. While multimorbidity is not a new phenomenon, there is increasing recognition of its impact. Multimorbidity increases rates of complications, leads to longer hospital stays and is negatively correlated with functional outcomes and gains in stroke patients, increasing the cost and decreasing the efficiency of stroke rehabilitation (Fischer et al. 2006; Hackett et al. 2009; Karatepe et al. 2008).

As evidence-informed care is posited to support the provision of high-quality, sustainable, patient-centred care, policy makers and administrators are turning to clinical

practice guidelines (CPGs) to support decision-making and resource allocation (Lindsay et al. 2008). In stroke rehabilitation, organizations across Canada are working to align clinical programs with the Canadian Stroke Rehabilitation Best Practice Recommendations (SRBPR) (Lindsay et al. 2014). These CPGs are built on a synthesis of over 2,400 studies, more than 1,300 of which are randomized control trials (RCTs), to support the adoption of evidence-based practice across the continuum of care (Teasell et al. 2016).

Despite the widespread development of CPGs, multimorbidity remains a recognized barrier to their application in a variety of settings and across conditions (Boyd et al. 2005; Fortin et al. 2011). The high-quality evidence on which most CPGs are founded is largely based on relatively short-term RCTs, which exclude the elderly or those with comorbid conditions (Glynn et al. 2008; Jadad et al. 2011; Kane and Butler 2012). As such, it is challenging to apply CPGs developed for the treatment of single diseases in the care of patients with multiple, often complex, chronic conditions. Evidence for clinical scenarios where patients present with multiple simultaneous problems is very limited (Fortin et al. 2011).

Boyd et al. (2005) and Fortin et al. (2012) examined CPGs for common chronic conditions for relevance to patients with multimorbidity, finding that very few CPGs provided treatment recommendations for patients with two or more conditions. To date, stroke CPGs have not been examined in this manner. We do not know to what extent they provide guidance for patients with multiple health conditions who require complex care. In this two-pronged research study, we examined how stroke rehabilitation clinicians are using evidence in everyday practice, and we appraised the degree to which stroke CPGs provide guidance for the complex patient population.

Study Approach

We undertook a two-phased study. In the first phase (Spring 2013), we conducted focus groups with stroke rehabilitation clinicians to explore how clinicians incorporate evidence into their daily practice while working with complex patients. We followed this phase with a critical appraisal of the SRBPR (Winter 2015) to determine the degree to which stroke rehabilitation CPGs provide specific clinical guidance regarding multimorbidity and other complexity factors.

Phase I: Focus groups

We invited all clinical team members working on two inpatient stroke rehabilitation units at a complex rehabilitation hospital to participate in focus groups as part of a larger study on complexity in stroke rehabilitation. Detailed methods are reported elsewhere (Nelson et al. 2016). Twenty-three occupational therapists, physical therapists, speech language pathologists, nurses and rehabilitation assistants participated

in one of four focus group sessions. Recruitment was iterative and conducted until thematic saturation was reached (no new concepts emerged). The study was approved by the Joint Bridgpoint-West Park-Toronto Central Care Access Centre Research Ethics Board.

Focus group participants were asked to reflect on their use of evidence and, more specifically, the role of the CPGs in their clinical decision-making. Audio recordings were transcribed verbatim. Transcripts were thematically coded using the constant comparative method (Grove 1988), simultaneously with data collection so that topics/issues arising in earlier focus groups could be explored in greater depth in later groups.

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Phase II: Guideline appraisal

Following the first phase of the study, we conducted a critical appraisal of the SRBPR, retrieved from the Canadian Best Practices for Stroke Care website (Lindsay et al. 2014). We drew upon work conducted by Boyd et al. (2005) and Fortin et al. (2011) to assess (1) which recommendations address/mention comorbid conditions, (2) if the recommendation was specific for the comorbidities mentioned, (3) if the recommendation provided treatment/management options pertaining to the comorbidities mentioned and (4) if the recommendation mentioned medication management for the multimorbidity. For the purpose of the study, “comorbidity” included stroke risk factors and other chronic conditions and excluded impairments resulting from the stroke.

As complexity and multimorbidity can be described with numerous terms (e.g. complex chronic conditions, multimorbidity, co-occurring conditions), we also reviewed the recommendations to assess if the guidelines provided direction regarding the modification of treatment based on “patient context.” This additional activity was conducted with the belief that CPGs may allude to accommodating comorbidities under the concept of “patient context,” “patient needs” or “patient-centredness.”

Each recommendation was individually reviewed and charted by two researchers (M.N. and S.A.). All disagreements were resolved by consensus after discussion between reviewers.

Results

Phase I: Focus groups

Focus group participants felt that the application of SRBPR to their practice was problematic for two key reasons: (1) lack of specificity in the recommendations regarding issues of complexity and (2) a perceived lack of applicability of the recommendations to “real-life patients.” We discuss these themes below.

Lack of specific clinical guidance

Participants found “the best practice guidelines fairly vague to begin with” (FG1) and felt that this perception contributed to their low rates of use. This was compounded by the participants’ perception that the recommendations provided limited clinical guidance for patients with multiple co-occurring conditions and other psychosocial issues (i.e., complex patients). Participants felt that instead of providing specific management direction, the recommendations only provided general information regarding treatment options:

“For physiotherapy best practices – they say maximize mobility! But they don’t tell us exactly HOW to do it, they just say do it. It’s so vague that any of these things can fall right into it, for example, it says identify supports, well ok but now what? Where are the best practice guidelines around the supports that are out there and which are the best?” (FG2)

Participants reported lower reliance on the recommendations; rather, most clinical team members depended on their own, and team members’, judgment and clinical decision-making experience:

“The guidelines are vague. They say: ‘this may or not be beneficial. We suggest you do it.’ But I don’t really have time to apply 30 different treatments to every patient, and then it’s up to me and my clinical judgment and my experience. So I am not looking at the best practices – rather I am relying on my own experiences for what I have found personally, clinically relevant.” (FG1)

Participants were uncertain of the applicability of the guidelines to their real-life daily practice.

Low perceived applicability of the recommendations to “real-life patients”

Participants felt that the recommendations focused on patients’ physical outcomes with less emphasis on the medical, social and environmental issues, which often complicate care and present a challenge for clinical team members to address:

“I don’t think that these things [medical, social, and environmental issues] are taken into consideration... so I think best practices seem to focus a lot on physical function and not necessarily on the environment and the broader issues enough.” (FG2)

Participants were uncertain of the applicability of the guidelines to their real-life daily practice. They felt that the guidelines were developed according to evidence from controlled trials in environments that were somewhat unrepresentative of real practice encounters:

“I want to know – I know that there are studies, but who decides what the best practices are? I mean, is it a study in a controlled environment and then it comes to real life, when you have all this [complex issues] to deal with?” (FG1)

When asked if the recommendations match the “real world,” one participant, gesturing to a list of complexity factors, stated:

“They don’t. Is all of that considered? All of the other stuff adds much more complexity and sucks up much more of our time. We have to address those things – these things are so important in getting them home. And that is a person! The real-life social issues – that is the important stuff!” (FG3)

Phase II: Critical guideline appraisal

We reviewed all 26 stroke rehabilitation best practice recommendations and corresponding sub-recommendations. Table 1 outlines the recommendations reviewed and whether each recommendation mentions comorbidities, provides explicit guidance regarding multimorbidity and alludes to a holistic approach to rehabilitation.

Comorbidities and stroke risk factors were mentioned in only 9 of the 26 recommendations. None of these recommendations provided explicit clinical guidance relevant to these comorbidities. The only exception was Recommendation 7.2 – Vascular Cognitive Impairment and Dementia, which addressed screening, assessment and management of vascular cognitive impairment in patients with vascular risk factors such as hypertension and diabetes.

When comorbidities were addressed in a recommendation, it was in a general non-specific manner, with no guidance or direction on how to manage these comorbidities in rehabilitation. There was very limited guidance on how to adjust therapies to suit patients with comorbidities. For example, a recommendation stated:

“Following medical clearance, patients should participate regularly in an aerobic exercise program that accommodates the patient’s co-morbidities and functional limitations to improve gait speed, endurance, stroke risk factor profile, mood, and cognition.”

TABLE 1.
Multimorbidity addressed by stroke rehabilitation recommendations

Recommendation	Mentions comorbidities	Provides explicit guidance for multimorbidity	Alludes to holistic approach
5.1 Initial Stroke Rehabilitation Assessment	No	No	No
Eligibility and Admission Criteria for Stroke Rehabilitation	Yes	No	No
5.2 Stroke Rehabilitation Unit Care	No	No	Yes
5.3 Delivery of Inpatient Stroke Rehabilitation	No	No	No
5.4 Outpatient and Community-Based Stroke Rehabilitation (Including ESD)	No	No	No
5.5.1 Management of the Arm and Hand Following Stroke	No	No	No
5.5.2 Range of Motion and Spasticity in the Shoulder, Arm and Hand	No	No	No
5.5.3 Management of Shoulder Pain Following Stroke	No	No	No
5.6.1 Lower Limb Mobility and Transfer Skills	No	No	No
5.6.2 Lower limb Spasticity Following Stroke	No	No	No
5.6.3 Lower Limb Gait Training Following Stroke	Yes	No	No
5.6.4 Falls Prevention Management	Yes	No	No
5.7 Assessment and Management of Dysphagia and Malnutrition Following Stroke	Yes	No	No
5.8 Rehabilitation of Visual Perceptual Deficits	No	No	No
5.9 Rehabilitation to Improve Central Pain	No	No	Yes
5.10 Rehabilitation to Improve Communication	No	No	No
5.11 Life Roles and Activities	No	No	No
6.1 Supporting Patients, Families And Informal Caregivers Following Stroke	No	No	Yes
6.2 Patient, Family and Informal Caregiver Education	Yes	No	Yes
6.3 Interprofessional Communication	No	No	Yes
6.4 Discharge Planning	No	No	Yes
6.5 Community Reintegration following Stroke	Yes	No	Yes
6.6 Transition of Patients to Long-Term Care following a Stroke	No	No	Yes
6.7 Post-Stroke Fatigue	Yes	No	Yes
7.1 Post-Stroke Depression	Yes	No	No
7.2 Vascular Cognitive Impairment and Dementia	Yes	No	No
8.1 Telestroke Recommendations	No	No	No

Three of the nine recommendations that mention comorbidities also include generic statements encouraging clinicians to adopt a holistic approach. These statements were non-specific and provided limited clinical guidance. An additional six recommendations included generic statements encouraging a holistic approach without mention of comorbidities. One of the recommendations is as follows:

“The care plan should be patient-centered, incorporate the agreed-upon goals and preferences of the patient, family, and healthcare team based on shared decision-making, and be culturally appropriate.”

Seventeen of the recommendations contained no mention of any comorbid conditions. These recommendations were primarily focused on the organizational aspect of patient care and the stroke rehabilitation unit.

Discussion

Stroke rehabilitation clinicians in this study perceived that the best practice recommendations lacked specificity regarding management of comorbidities and psychosocial issues, and were perhaps not applicable to “real-life patients.” Results from our critical appraisal of the recommendations found that only 9 of 26 rehabilitation recommendations mentioned comorbidities or stroke risk factors, none of which provided detailed guidance on how to manage care for these comorbid patients. These results are similar to the work conducted by others (Boyd and Fortin 2010; Fortin et al. 2012; Guthrie et al. 2012; Hughes et al. 2012), who report limited clinical guidance provided for patients with multimorbidity in CPGs in other clinical settings. We built upon this literature by appraising stroke rehabilitation CPGs, a clinical area where the majority of patients experience co-occurring conditions, and we added important insights into the challenges faced by providers in day-to-day practice.

CPGs are widely recognized as “knowledge tools” that support high-quality healthcare services (Davies et al. 2007) by assisting clinicians and patients with healthcare decisions. CPGs can also be used to promote efficient use of resources, reduce inappropriate variation in practice, steer quality-improvement efforts, highlight shortcomings of existing literature and suggest future research. In stroke rehabilitation, services are continually being organized to align with the Canadian SRBPR. In our study, stroke rehabilitation clinicians were concerned that these recommendations, based upon over 1,300 RCTs, do not match the patients seen in daily practice. If RCTs commonly exclude older adults and individuals with comorbidities (Boyd and Fortin 2010; Fortin et al. 2011; Guthrie et al. 2012; Jadad et al. 2011), what type of patient population is this evidence built upon? And can this evidence be generalized to guide the care of our patient, Mr. Prince, the “real life” stroke patient? A deeper understanding of the evidence base for stroke rehabilitation interventions is needed to determine what evidence is relevant to which patients with comorbidities.

Clinicians’ limited reliance on CPGs when working with patients with multimorbidity is supported in the literature (Caughey et al. 2011) and raises an important question in terms of CPGs’ impact on reducing practice variation. If the point of CPGs is to reduce inappropriate practice variation, does the lack of specific clinical guidance for multimorbidity and other complexity factors foster inappropriate variation and perhaps decrease the quality of care? If viewed from the stance that CPGs are meant to assist in the provision of consistent care within a specified clinical situation, but not necessarily expected to define a standard of care (College of Physicians and Surgeons of Ontario 2012), practice variation would not be seen as a deficiency of practice. Perhaps with the high variability of comorbid conditions and psychosocial issues seen in the patient population, working towards uniform treatment is an unreasonable expectation. As noted by Manski

(2011: 3), “different clinicians may reasonably interpret the available evidence in different ways and may reasonably use different decision criteria to choose treatments. Thus, there is no *prima facie* reason to view treatment variation as unwarranted, inappropriate, or unacceptable.” However, clinicians in this study seemed uncomfortable relying solely on their clinical judgement in the absence of specific guidance. There is an opportunity within the stroke rehabilitation recommendations to provide principles for the application of the guidelines to patients with multimorbidity and complexity more broadly.

Stroke rehabilitation, like many other clinical settings, would benefit from the alignment of treatment recommendations for common chronic conditions. For this to happen, we need to expand beyond the disease-specific approach of CPGs and collaborate across boundaries to develop recommendations that are relevant to patients with multimorbidity. As noted by Guthrie et al. (2012), although it is not possible to have good-quality evidence for every combination of chronic conditions, it would be helpful to bring together relevant recommendations for different chronic conditions, highlighting synergies, cautions and contraindications. Stroke rehabilitation is one clinical area that could lead this type of activity, as stroke patients generally present with some common comorbidities – hyperlipidemia, diabetes and hypertension (Gallacher et al. 2013). This paper also suggests that mental health and social determinants of health (factors that affect many complex patient populations, not just stroke patients) need to be seen as these “other” factors that have a strong impact on treatment adherence. Given that the Canadian SRBPR are continuously updated, there is an ongoing opportunity for CPG conveners to collaborate, develop and test mechanisms that would improve and align CPGs for patients with commonly co-occurring conditions.

The study results also raise important questions regarding the use of CPGs in the development of funding models. The implementation of quality-based funding is intended, in part, to motivate healthcare providers to adopt best practices and set quality standards. However, if CPGs fail to account for the clinical reality of multimorbidity, using them to develop fundable care pathways may be met with limited success. As the majority of stroke rehabilitation patients have multiple chronic conditions, funding mechanisms that seek to implement evidence-informed practice for these patients must explicitly account for multimorbidity, social determinants and mental health.

There is a mismatch between the intention of CPGs and the capacity of care providers to meet the needs of a growing and increasingly complex patient population. This research highlights an opportunity to harness the insights of clinicians to inform the development of CPGs that better align with the day-to-day realities of providing care. This knowledge can then be used in shaping healthcare governance structures and funding models to support quality of care and improved health outcomes.

Conclusion

Our study suggests that stroke rehabilitation clinicians may find themselves having to rely extensively on their clinical judgement and experience when making treatment decisions for complex patients. The critical appraisal confirmed that the Canadian SRBPR do not sufficiently reflect the realities of patients in rehabilitation settings. For clinicians creating treatment plans for patients like Mr. Prince, the CPGs provide very limited guidance specific to the management of multimorbidity. These results are not surprising – many studies across disease and clinical contexts have made similar conclusions. Given the prevalence of comorbidity and complexity in stroke rehabilitation, we feel this clinical context is ideal for development and testing of CPGs that account for multimorbidity and other complexity factors. By extension, developing strategies to transcend disease-specific care approaches could support the pursuit of broader system-level solutions to care for patients with multimorbidity. **HQ**

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