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Reflection and Evidence-Based Practice in Action: A Case Based Application

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Abstract
Reflective practice and evidence-based practice are essential to clinical practice. The former provides a retrospective look at current practice and questions the reason for doing so. The latter provides the means by which best evidence can be used to make foundationally sound and clinically relevant decisions. This article demonstrates the utility of and the dynamics between reflective practice and evidence-based practice in the clinical setting using the first-hand experience of a physical therapist in home health care who worked with an elderly patient diagnosed with benign paroxysmal positional vertigo. The outcomes of the clinical case serve as the basis for critical reflection by the clinician, and the springboard for the clinician's retrospective search for evidence. The employment of the principles of reflective practice and evidence-based practice has led the clinician to an awareness of habituated practices, the need for a more proactive approach to providing effective interventions, and the use of current best evidence to advocate for patient welfare. In order to maintain the first-hand clinician perspective and the integrity of the reflective process, the clinical case and the subsequent critical reflection were written in first-person language.

Introduction

Evidence-based practice (EBP) continues to gain momentum as the framework of practice among health care practitioners.[1,2] Through a process of linking best evidence to clinical outcomes, practitioners are able to make more empirically based clinical decisions. Despite this trend, however, factors such as time, access, knowledge, and others constrain clinicians from fully utilizing the practice.[2-4]

In its conduct, EBP appears to follow five steps: defining the case-based question, searching for and collecting the best evidence, critically appraising the strength of the evidence, integrating clinical expertise and patient values in the context of the evidence, and evaluating the effectiveness of entire process.[5,6] Of the five steps outlined, the fifth step in the process provides the reflective component in the practice framework, where professionals look back at an experience or situation to analyze what was learned.[7]

Incorporating critical reflection into EBM not only allows the clinicians to evaluate the efficacy of the treatment, but also forces them to generate alternatives to the practice that are efficient and effective. The subsequent case from actual clinical practice demonstrates how both critical reflection and evidence-based practice can be utilized in patient care.

Clinical Case

The following case study revolved around a patient diagnosed with benign paroxysmal positional vertigo (BPPV). I had the opportunity to work with this patient only once during an episode of care, and was not the primary physical therapist of the patient. However, with permission from the primary physical therapist, the patient, and the home health agency, I was able to review, audit, and critique the physical therapy management of the patient based on information documented in the patient's records which were housed in the health agency where I worked on alternate weekends.

History, Examination, Diagnosis and Intervention

The patient was an 84 year-old female who was referred for home health physical therapy secondary to dizziness from posterior BPPV diagnosed in the referral paperwork as having been determined through a positive Dix-Hallpike test. Prior to the referral, the patient experienced multiple falls because of her condition. The patient had

been living with her son since she became widowed five years ago. They lived in a cluttered two-bedroom, single-story house owned by the son, who worked as a cook in the local high school. Since school was off during the summer, the son was present during the physical therapy evaluation of the patient. Both the patient and her son supplied subjective information during the evaluation session.

During evaluation, the patient reported that she felt very dizzy and that her head would spin whenever she got up out of bed, stood up from sitting, or made any sudden movements or changes in posture. Because of this, she would first have to "get her bearings" for about a minute, after which time the symptoms would diminish but not resolve. The son added that this dizzy spell was not an isolated event; he reported that the patient had similar spells during the summer of last year, but that the dizziness resolved spontaneously after a couple of weeks. The son also stated that the patient had experienced a transient ischemic attack four years ago, but that the doctors saw no permanent deficits from this.

On examination, the patient did not manifest any overt neurological or musculoskeletal deficits other than nystagmus with changes in posture and position. Her upper extremity and lower extremity joint ranges were within functional limits, and her muscle strength was grossly graded fair to good. Tests and measures were performed in initially supine, then sitting, and finally standing, with adequate time allowed for the patient to "get her bearings" from the changes in position.

Reproduction of symptoms was noticeable from supine-to-sit and sit-to-stand which lasted for about 45 seconds. During the performance of these gross functional skills, the patient was able to perform them slowly and deliberately with close supervision. Moreover, in the performance of these gross functional skills, there was an obvious attempt by the patient to keep her head and neck steady, moving in concert only with the trunk to avoid sudden changes with the posture of the head and neck. Postural assessment yielded a slightly forward head and increased thoracic kyphosis in independent standing without any assistive device. Although the patient had a quad cane, her preferred mode of navigation in the house and against the clutter was by holding on to the wall and furniture while at the same time keeping her head and vision slightly forward and downward with minimal movement of the neck. The patient was seen for three times a week for two weeks to address the balance impairment and dependence with functional skills by utilizing open and closed chain exercises in standing and functional skills training. At the end of the second week, the patient went back to her referring physician with no appreciable progress. The referring physician subsequently referred the patient to a specialist in vestibular and balance disorders, who was able to treat the patient's condition with the Epley maneuver resulting in relief of the patient's symptoms after only two sessions.

Retrospective Search for Best Evidence

Why did the intervention provided during home health physical therapy not relieve the patient's symptoms? Additionally, why was the intervention provided by the vestibular specialist effective? These were the questions that ran through my mind as I contemplated the clinical case. To answer these questions, I began my search for the effectiveness of each intervention in relieving the symptoms of BPPV.

My search for the best evidence for the treatment of BPPV began initially by gathering background information about the condition and the treatment procedures associated with functional impairments resulting from the pathology, and then eventually with what the evaluating therapist in this case study employed in the treatment of the patient's symptoms, (i.e., closed and open chain exercises in standing) and what the vestibular specialist employed after receiving the referral from the primary physician (i.e., Epley's maneuver).[8,9] More specifically, the patient specific question that I was posited was, "For an 84 year-old patient diagnosed with posterior BPPV, would the use of closed and open chain exercises in standing be more effective than the Epley maneuver in relieving patient symptoms?" The results of my search yielded the information I needed to answer my questions related to the effectiveness of one intervention over the other. Here is what I found:

- Closed and open chain exercises in standing as a treatment for BPPV: **Database**: EBM Reviews Full Text and All EBM Reviews; **Search terms**: closed chain AND open chain AND vertigo; **Results**: no evidence was found.
- Epley's maneuver (a.k.a., canalith repositioning procedure) as a treatment for BPPV: **Database**: EBM Reviews Full Text and All EBM Reviews; **Search terms**: canalith repositioning AND vertigo; **Results**: Three of the 12 articles found this technique effective. Of the three articles, two[10,12] were randomized control trials involving a total of 86 patients while the third[11] was a systematic review. The remaining articles were excluded either because they employed procedures in addition to the Epley maneuver or were not utilized in physical therapy practice. From the three articles selected, the article by Froehling, Bowen et.al.[10] appeared to be most relevant to the clinical case. Details of the study were as follows:

The study was a randomized controlled trial of 50 patients randomized into the sham and experimental groups. Results of the study revealed that the experimental group had lower rates of vertigo when compared with the sham procedure after an average follow-up of 10 days. The experimental group also had

higher negative results for the Dix-Hallpike test compared with the sham procedure. The major strengths of the study included the randomized assignment of patients into experimental and sham groups and the blinded assessment during follow-up. Its limitation revolved around the inconsistency of follow-up time and how the length of time between treatment and follow up affected the results of both groups.

A post hoc PubMed Clinical Queries search using "therapy" as category and "narrow, specific search" as scope yielded 13 randomized controlled trials, seven of which were eliminated after the exclusion criteria outlined earlier were imposed. Of the remaining articles, two were duplicates from the previous search, and four were unduplicated articles. Of the four articles, three[13-15] found the Epley maneuver effective and one[16] did not see the benefit of the procedure for the treatment of BPPV.

Critical Reflection After Searching for Research Evidence

The aphorism about hindsight being 20/20 accurately describes the sentiment I feel in relation to the care developed for and provided to the patient. On a personal level, as a health care provider, my *raison d etre* is to help and heal, not to harm or hurt. Unfortunately, as this clinical experience has proven to me on a practical and an experiential level, traditional approaches to physical therapy without the foundation of best evidence may also prove detrimental to the patient's welfare and well-being. Although I had seen the patient only once during the two weeks of care, I am convinced that the seminal issue that would have improved the patient's care and outcome would have been the employment of the treatment intervention proven by current best evidence as effective. I was appalled to discover that the treatment interventions that the patient received during two weeks of physical therapy had not been proven effective (i.e., open and closed chain standing exercises) when another, more effective intervention would have sufficed (i.e., Epley maneuver)—no wonder the patient did not get any appreciable progress during home health!
On a personal level, my role as a weekend clinician should not have dictated my approach to patient care. What I mean by this is that, instead of blindly following the established plan of care by the evaluating physical therapist, even if I have to see the patient for only one visit, I should have been more proactive in seeking the best treatment for the patient and an advocate of best evidence. By doing so, I would have been able to provide the most effective interventions to the patient, not with mention sharing this information to the supervising therapist.

A retrospective look at what I did and what I could have done with the patient in this study has been a learning milestone in my professional practice. I regret the fact that the intervention employed in the plan of care of the patient had no scientific basis in evidence. Knowing what I know now, there would be three things I would adopt and change. First, I would question habituated and traditional practice by asking myself if there is evidence for what is being done currently. Second, I would be more proactive looking for current best evidence in the care of patients. Third, I would be an advocate for evidence-based practice by teaching the principles associated with this practice with my colleagues.

Discussion

Both reflective practice and evidence-based practice have one overarching goal—improvement of practice. Whereas reflective practice employs a more introspective analysis of practice,[17] evidence-based practice utilizes the research evidence, along with clinical expertise and patient preferences, in making clinical decisions to improve outcome.[18]

In the preceding case, the clinician utilized what Schön has called "reflection on action" – the ability to determine what happened, what may have contributed to the event, whether actions taken were appropriate, and how this situation may affect future practice.[19] By reflecting on possible reasons behind differing outcomes the treatment provided by physical therapy and that provided by the vestibular specialist, the clinician was not only able to recognize his lack of expertise in the area, but also—and more importantly—utilize the principles of evidence-based practice in arriving at the answer.

The retrospective search for best evidence in the case followed the basic steps outlined earlier. Beginning with the question on the effectiveness of one treatment intervention over another, the clinician searched for research evidence supporting the effectiveness of each intervention. By appraising the strength of the research evidence, the clinician was able to determine if there was strong empirical proof of treatment effectiveness.

Although, admittedly, the fourth step in the process may not be applicable to the retrospective analysis, nonetheless, the "integration of clinical expertise" along with the final step—evaluating the process—allowed the clinician to recognize his lack of expertise in the area. The identification of this knowledge gap, spurred the clinician to what Munhall called, "…learning how, when and where theory and research may be used to produce a desired outcome."[20]

Conclusion

Evidence-based practice and reflective practice are essential to the professional development of an individual and the advancement of any profession. The former provides a sound, research based foundation for clinical practice and professional growth while the latter allows the practitioner to continually assess and re-assess practice for the purpose of personal improvement. The question that comes to fore is whether or not both can co-exist in clinical practice, and how can both be utilized effectively.

The preceding case appears to demonstrate that reflective practice and evidence-based practice can co-exist and be utilized effectively in the clinical setting. Through critical reflection, the clinician is able to take a retrospective look at the conduct and outcomes of practice situations similar to the preceding clinical case and is also able to question the wisdom behind traditional and habituated thoughts and practices. By employing the principles of evidence-based practice, the clinician engages in the process of finding the best evidence to justify interventions and expect better outcomes. Further study, however, is needed on the use of and dynamics between reflective practice and evidence-based practice in various aspects of clinical practice and patient care.

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