

Clinical News: Improving Warfarin Adherence in Elders

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Today's Geriatric Medicine

Vol. 11 No. 4 P. 26

Medication adherence is at problematic levels in the geriatric population, and lack of adherence to warfarin therapy is a significant issue. Failure to adhere to the medication guideline for warfarin results in life-threatening adverse events. According to Maloney and Kagan, older patients' adherence to neoplastic oral agents is improved by the patients' knowledge.¹ Education is an essential component of medication compliance for geriatric patients on warfarin therapy. Therefore, using education as a tool to increase medication adherence in the geriatric population is imperative to patients' continued well-being. The implementation of a practice change—an individualized education program designed for warfarin patients—will not only improve patients' adherence but also decrease the likelihood of an adverse event occurring due to noncompliance.

The Theory of Goal Attainment, developed by Imogene King, EdD, MSN, is supportive of practice change.² King's theory was first introduced in the 1960s with the concept that the nurse and the patient must communicate collaboratively, set mutual goals, and take action to achieve the goals set.² According to King, the metaparadigm of health is the environment continually interacting to assist in the adjustment to change.² Medication nonadherence triggers adverse consequences on the general health and well-being of the patient and has a detrimental cost effect on the health care community as a whole. The theory stresses the importance of the doctoral-prepared nurse role in the entire health care system.

To identify appropriate evidence-based interventions, a comprehensive research and review of literature was conducted utilizing the following databases: Chatham University Jennie King Mellon Library, EBSCOhost, CINAHL (Cumulative Index of Nursing and Allied Health Literature), PsycINFO, SocINDEX, and ScienceDirect. The literature review was restricted to the previous 10 years. All relevant articles were categorized and critiqued. The keywords used included barriers, geriatric, medication adherence, elder self-neglect, and warfarin; Boolean operators AND and OR were used. Studies were both qualitative and quantitative in nature, with no restriction on the level of evidence.

An Evidence-Based Practice Change Project

The steps of the Iowa Model of Evidence-Based Practice (EBP) served as a guide for development and initiation of the EBP change project aimed at improving geriatric patients' adherence to warfarin. The project was designed and implemented using a geriatric patient population at a family practice office in Port Orange, Florida. The potential participants were established patients recruited from the practice, which has been present in the community for the past 40 years with approximately 2,000 active patients.

The EBP change project was implemented with 11 individuals, seven female (64%) and four male (34%), with a mean age of 78 years (ranging from 67 to 91 years). Those who agreed to participate signed a consent form and completed the Morisky Medication Adherence Scale (MMAS-8) tool to measure adherence to warfarin preintervention.³⁻⁵ Self-reported questionnaires are frequently used because they are low in cost and are not time-consuming. The MMAS-8 was developed by Donald Morisky, ScD, and appeared in 2008 in the *Journal of Clinical Hypertension*.³ The MMAS-8 demonstrated good reliability with a Cronbach's alpha coefficient ($\alpha=0.83$).³ It has a sensitivity of 93%, indicating the scale is good at identifying participants with a low medication adherence, and a specificity of 53%, indicating a moderate scale performance identifying participants who do not have an issue with medication.⁵

The warfarin education program consisted of 11 educational handouts and 11 warfarin tracking calendars. Following the education intervention, a follow-up telephone survey was conducted and the MMAS-8 was readministered. Because the MMAS-8 questionnaire was completed pre- and postintervention, 22 copies were required.

Project effectiveness was analyzed to determine whether medication adherence to warfarin therapy increased with individualized education sessions. First, data were analyzed on the results of the MMAS-8 questionnaire pre- and postintervention with a comparative means analysis. The prothrombin time/international normalized ratio (PT/INR) values were drawn through routine lab analysis in the office. Second, PT/INR values postintervention were analyzed as subtherapeutic, therapeutic, or supratherapeutic with an 80% benchmark that the value will be therapeutic. Therapeutic PT/INR value is 2 to 3 for atrial fibrillation and deep vein thrombosis. This analysis determined whether the participant gained adherence to warfarin postindividualized education session. The MMAS-8 scale contains seven yes/no responses. The MMAS-8 has an established adherence level of less than 6 as low adherence, 6 to less than 8 as moderate adherence, and 8 as high adherence.⁵ If 80% or more of the participants remain adherent after comparing the pre- and postintervention individual scores, project success is ascertained. Benchmarking is the continual process of measuring services and practices against the competitors of the health care industry.

Results

The purpose of this practice change was to evaluate the effectiveness of an individualized education session with a geriatric patient on warfarin therapy. The EBP project findings determined that the clinical issue of a lack of medication compliance of warfarin in geriatric patients was improved when the education tool was introduced to the geriatric population. Not only did this intervention increase adherence and improve patients' health but it also boosted their well-being and quality of care.

The principal investigator discovered the effectiveness of the EBP project was based on calculation of the percentage of individuals who fell within the adherent rating after calculation of individual scores. Although the participants demonstrated a medium to high adherence preintervention at a score of 7.068, the postintervention score increased to 7.425 (see Figure 3). A benchmark of 80% or higher was established to measure that participants would score at least 6 on the MMAS-8 postintervention. A 90% benchmark was achieved, exceeding the predetermined 80% benchmark. One participant's score decreased postintervention, perhaps due to recall. One participant was not able to be reached for postintervention; therefore, the post-MMAS data could not be calculated.

Practice Implications

Medication adherence is a global problem that contributes to an increase in health care costs. It's evident that intervention is warranted, especially in the geriatric patient population, which often faces additional barriers to medication adherence. The clinical problem addressed the issue of medication adherence in geriatric patients on warfarin. The number of geriatric patients on warfarin can represent a significant risk for morbidity and mortality due to medication nonadherence. Nonadherence can have a detrimental impact on patient health and the health care system as a whole. Health care costs rise when nonadherence is present, resulting in an increase in the number of hospitalizations.

The clinical problem of lack of medication adherence to warfarin was identified in geriatric patients. The implementation of an individualized education session was conducted. The EBP project was successful in meeting the objectives of increasing participants' adherence to warfarin therapy. The ability to identify and translate knowledge into practice to improve patient outcomes and quality of care were the primary goals of this EBP practice change project.

Two primary practice implications arose from this EBP change project. The first was the need for implementation of a policy to ensure patient adherence to having their PT/INR labs performed at previously scheduled times. This contributed to a newly found barrier to patient contact, creating the opportunity for an adverse event to occur, as patients were not going for their routine scheduled PT/INR lab draws. The practice had no set policy to "track" those patients to ensure this was done. The second practice implication was the use of individualized education to maintain medication adherence. It was determined that medication adherence to warfarin itself increased as a result of this project as well. Future efforts can apply the aforementioned finding to create a more effective tracking system of PT/INR lab values in geriatric patients on warfarin.

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