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Commentary

Importance of Medication Knowledge in Patient Safety

Abstract

Pharmacology is an integral component in a physical therapist professional education as physical therapists play an important role in improving medication safety by being cognizant of the medications a patient is taking and monitoring for medication effects with an emphasis on physical functioning and determining if medications are adversely affecting physical functioning. Physical therapists (PT) encounter many adults that take five or more medications and knowing of the medications and their effects – both intended and undesired allow PT's the opportunity to improve patient safety, reduce the risk of adverse drug events and improve therapist practice. Many medications that appear to be safe are potentially inappropriate for the geriatric population and use of the Beers Criteria including non-steroidal anti-inflammatories that increase the risk of gastro-intestinal bleeding and worsen heart failure. Other medications increase the risk of myopathy and tendinopathy which must be taken into account when designing safe and effective care plans.

Op Ed. Commentary

The Physical Therapy Profession has seen dramatic change over its history as it has moved to a doctoring profession from one that started out as a "reconstruction Aide" program [1,2]. The doctor of physical therapy (DPT) degree became the only degree conferred upon completion of an entry level physical therapy program in January of 2016 [1,2]. Pharmacology is an integral component in a physical therapist professional education as per the Commission on Accreditation of Physical Therapy Education (CAPTE) [3].

The physical therapy profession, similar to other doctoring profession has the professional responsibility for lifelong learning, developing clinical reasoning skills, refining their knowledge, skills, abilities and demonstrating professional behavior showing clinical competence. Principle #6 of the code of ethics for physical therapists' states, "Physical therapists shall enhance their expertise through the lifelong acquisition and refinement of knowledge, skills, abilities, and professional behaviors." The code outlines values and behaviors for therapists to adhere to promoting ethical practice and accountability to the public [4].

Regarding pharmacology, physical therapists must keep their skills and knowledge current to ensure patient safety, especially in geriatric practice due to the widespread use of prescribed, over the counter (OTC) medications and dietary supplements. The Institute of Medicine's "Preventing Medication Errors" report (2006) states that 4 of 5 U.S. adults are taking a prescribed medication, OTC medication or dietary supplement and nearly a third are taking 5 or more medications [5]. Physical therapists play an important role in improving medication safety by being cognizant of the medications a patient is taking and monitoring for medication effects with an emphasis on physical functioning and determining if medications are adversely affecting physical functioning.

Physical therapists (PT) encounter many adults that take five or more medications and knowing of the medications and their effects – both intended and undesired allow PT's the opportunity to improve patient safety, reduce the risk of adverse drug events and improve therapist practice [5]. Adverse drug events (ADE) are defined as injuries due to a medication. Some ADE's are considered inevitable due to more powerful drugs being prescribed, but, most often harm is caused by errors in prescribing or taking the medications which are considered to be preventable.[5] Most hospitalizations related to ADE are due to five medication classes including: hematologic agents (warfarin-related hemorrhage, anti-platelet related hemorrhage), endocrine agents (hypoglycemia), cardiovascular agents (electrolyte/fluid volume disturbances or non-specific weakness), central nervous system agents and anti-infective agents [6].

The most common physician diagnoses that physical therapists working in geriatric practice encounter include:

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degenerative joint disease/osteoarthritis, total joint replacement (knee, hip and shoulder), stroke, cardiopulmonary and medical complications [7], these conditions are treated medically with the same five drug classes responsible for the majority of ADE's and subsequent hospitalizations. Additionally, many patient's take OTC medications for symptom relief and also have the potential for ADEs. Therapists must be diligent when taking a history or performing a systems review to capture all the pharmacological interventions (prescription, over-the-counter medications and dietary supplements) that a patient is taking when performing an examination. Examinations are part of the patient/client model and more information is available in the guide for physical therapist practice 3.0 [8].

Many medications that appear to be safe are potentially inappropriate for the geriatric population. A list of these potentially inappropriate medications called the Beers Criteria for Potentially Inappropriate Medication Use in Older Adults (2015) published by the American Geriatrics Society (AGS) is a resource for all clinicians practicing in geriatric care [9]. An over the counter medication used to treat pain related to osteoarthritis is ibuprofen, a non-steroidal anti-inflammatory (NSAID) medication is listed on the Beers Criteria with warnings about increased risk for gastrointestinal bleeding or peptic ulcer disease in the general geriatric population. Additionally, patients with heart failure has an increased risk for fluid retention and exacerbation of heart failure symptoms [9].

One of the most commonly prescribed medication classes are the cholesterol lowering medications called statins. This class of drug has been shown to increase the risk of myopathy, may cause skeletal muscle cramping, soreness, fatigue, weakness and muscle breakdown [10]. Being aware of the side effects and risk of statins, therapists are able to differentially diagnose whether muscle pain and soreness are a result of the exercise and activity prescribed or be a side effect of the statin. If, for example a patient has muscle cramping related to a statin medication, interventions provided by the therapist to relieve the cramping may be ineffective as the most appropriate treatment is not stretching, but, rather remove the offending medication.

Commonly prescribed medications such as ciprofloxacin and levofloxacin from the fluoroquinolone class of antibiotics have been attributed to peripheral neuropathy, tendinopathy including rupture [11,12]. Being aware of the risk of tendon rupture/tendinopathy with this class of medication helps physical therapists develop safer exercise prescriptions and reduce the risk of injury while under the care of a physical therapist for patients taking these medications.

In summary, physical therapists that account for the medications a patient is taking provide for monitoring for intended effects, side effects and adverse drug reactions which allows therapists greater opportunities to improve patient safety.

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