Clinical Update: April 2020

Broaden your Understanding: Benefits of the InterACT Rx™ Expansion

In 2015, Aegis Sciences Corporation began to seek out a way to expand the clinical information that could be provided through definitive testing. With this in mind, and an understanding of the limitations of current medication reconciliation practices, we developed an objective test (InterACT Rx) to identify drug-drug interactions (DDIs) in patients impacted by adverse drug events (ADEs) secondary to DDIs. The initial goal of this product was simple: provide healthcare workers with a means to objectively identify ingested prescription and non-prescription substances, and subsequent interactions or ADEs, capable of impacting commonly prescribed medications used to treat chronic pain and mental health disorders. InterACT Rx proved to be useful in patient care, allowing providers to make more sound clinical decisions in relation to identified DDIs.

Multimorbidity, or the presence of multiple diseases or conditions, among patients with chronic pain and mental health disorders has been well documented.[1,2] Additionally, multimorbidity has been closely tied to polypharmacy, a significant driver for risk of drug-drug interactions between prescription and non-prescription substances.[3,4] In order to better serve healthcare providers, InterACT Rx testing has been expanded to assist with identification of additional commonly prescribed interacting medications used to treat other comorbidities that pain and behavioral health patients may face. A high-level summary of our expansion, which moves the total number of tested substances to over 180, can be seen in the table below:

Drug Classes Added	Drug Classes Expanded
Anti-Parkinson Agents	Antidepressants and Antipsychotics
Antithrombotics	Antiemetics and Gastric Reflux
Cognitive Enhancement Agents	Antihypertensives
Inhaled Corticosteroids and Beta Agonists	Antimicrobials and Antiretrovirals
	Chemotherapeutic Agents

Highlights regarding some of the new DDIs that InterACT Rx will be capable of detecting and reporting are provided below.

Introduction of Anticoagulants

Anticoagulants are utilized for a number of reasons and can have both short-term and long-term requirements. For example, patients with chronic non-cancer pain may receive anticoagulants after a hip or knee replacement post-operatively to reduce the risk of a deep vein thrombosis (DVT). Patients with comorbid atrial fibrillation or those at risk for a second DVT may be required to take this class of medications indefinitely. Both warfarin and newer direct oral anticoagulants have significant risks for kinetic and dynamic DDIs, and interactions can result in either life-threatening bleeds or significantly increased risks for a blood clot. Classes of medications that can contribute to these types of DDIs

include antiarrhythmics, antiretrovirals, antimicrobials, antiemetics, antihypertensives, and anticonvulsants.[5-11] In patients with significant cardiovascular comorbidities, or those who have recently undergone a surgical intervention to help with chronic non-cancer pain, assessing for interactions involving anticoagulants could help prevent dangerous ADEs.

Drug-Drug Interaction (DDI)

Potential Interaction Detected		Interaction Severity	Interaction Description
Apixaban	Carbamazepine	SEVERE	Concurrent or recent use of apalutamide, carbamazepine, efavirenz, fosphenytoin, phenobarbital, phenytoin, primidone, rifampin, or St. John's wort may result in decreased levels and effectiveness of apixaban(1-4) or rivaroxaban.(5)

Interactions Involving Over-the-Counter (OTC) Products

Since its inception, Aegis has included OTC products capable of contributing to high-risk DDIs in the InterACT Rx test. Moving forward, testing will include both omeprazole and esomeprazole, two of the most frequently purchased OTC remedies for gastric reflux. These products can impact both the metabolism and absorption of prescribed medications, but one of the more significant interactions seen involves the antidepressant citalopram. At times, patients require higher doses of citalopram for control of depression. When co-ingested with omeprazole or esomeprazole, it is possible that concentrations of citalopram may increase to toxic levels. This can contribute to life-threatening cardiac toxicity, and can result in development of torsades de pointes.[12,13]

Drug-Drug Interaction (DDI)

Potential Interaction Detected		Interaction Severity	Interaction Description
Citalopram / Escitalopram	Esomeprazole / Omeprazole	SEVERE	Concurrent use of an agent that inhibits CYP2C19 may result in elevated levels of and toxicity from citalopram, including prolongation of the QTc interval. Prolongation of the QT interval may result in life-threatening arrhythmias, including torsades de pointes.(1,2)

Comorbidity Contributing to Interactions in Rheumatoid Arthritis Patients

Patients with rheumatoid arthritis often find themselves at a crossroad of requiring opioid therapy for management of pain and being impacted by comorbid depression.[14,15] Additionally, these patients often require treatment to reduce disease progression. Methotrexate is a treatment option for slowing disease progression, but it is prone to significant adverse effects secondary to DDIs involving antipsychotics, OTC products, and antimicrobials.[16-18] Thus, it is not only important to assess patients for potentially complex medical histories, but identifying and mitigating the risk associated with DDIs involving methotrexate could significant reduce the opportunity for ADEs.

Drug-Drug Interaction (DDI)

Potential Interaction Detected		Interaction Severity	Interaction Description
Ciprofloxacin	Methotrexate	SEVERE	The concurrent use of methotrexate and ciprofloxacin may result in elevated levels of methotrexate and increased methotrexate-related adverse effects and toxicities.

NOTICE: The information above is intended as a resource for health care providers. Providers should use their independent medical judgment based on the clinical needs of the patient when making determinations of who to test, what medications to test, testing frequency, and the type of testing to conduct.

References:

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