Managing Psychiatric Polypharmacy

Netsmart's commitment to supporting clinicians in medication management

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MANAGING PSYCHIATRIC POLYPHARMACY

Polypharmacy is an ever-increasing concern for today's mental health administrators. The amount of psychiatric polypharmacy has been increasing each year.[1] The main focus of polypharmacy awareness has been related to both clinical concerns – such as patient safety and more effective, evidence-based prescribing – and costs.

Polypharmacy can quickly become a money drain for organizations. It has been estimated that unneeded prescriptions cost the nation's public and private health plans as much as $50 billion annually.[2] Additionally, for community-based mental health organizations that fund indigent drug programs, the use of psychiatric polypharmacy can prove to be a very costly practice.

Polypharmacy is justified in many situations. The use of multiple medications can be an appropriate, necessary and effective clinical intervention. There are many situations where polypharmacy is appropriate and even necessary. It is not the goal of the current article to question the clinical judgment behind appropriate polypharmacy. Rather, the goal of the article is to raise an awareness of inappropriate polypharmacy, that being, the use of polypharmacy which goes against good medical evidence and practice and to provide possible solutions for mental healthcare providers to help manage it.

WHAT IS POLYPHARMACY?

There are many definitions of polypharmacy. Some definitions are broad, stating that it is the use of potentially unnecessary and excessive amounts of medications; and some are narrower, stating that polypharmacy is prescribing more than one drug from the same class for the same patient at the same time.[2] Some state that polypharmacy is the use of five or more drugs at the same time in the same patient.[3]

Within the definition of polypharmacy, one can separate therapeutic polypharmacy from contra-therapeutic polypharmacy.[3] *Therapeutic polypharmacy* is when expert panels or researchers in controlled clinical trials recommend using multiple medications to treat specific diseases. Examples include using multiple drugs to help achieve an intended therapeutic goal or adding a drug to prevent a known side effect of another drug. *Contra-therapeutic polypharmacy* occurs when a patient taking multiple drugs experiences an unexpected or unintended negative outcome. There are different opinions about what constitutes inappropriate polypharmacy. In general, the degree of risk and benefit associated with polypharmacy varies depending on the medications used and the characteristics of the patient.

The National Association of State Mental Health Program Directors (*NASMHPD) Medical Directors' Technical Report on Psychiatric Polypharmacy* divides polypharmacy into the following five categories that describe the impact and appropriateness of polypharmacy in greater detail: [4]

1. **Same-Class Polypharmacy**: The use of more than one medication from the same medication class (e.g., two selective serotonin reuptake inhibitors, such as fluoxetine plus paroxetine).

2. **Multi-Class Polypharmacy**: The use of full therapeutic doses of more than one medication from different medication classes for the same symptom cluster (e.g., the use of lithium along with an atypical antipsychotic, such as fluoxetine plus olanzapine for treatment of mania).
3. **Adjunctive Polypharmacy:** The use of one medication to treat the side effects or secondary symptoms of another medication from a different medication class (e.g., the use of trazadone along with buproprion for insomnia).
4. **Augmentation:** The use of one medication at a lower than normal dose along with another medication from a different medication class at its full therapeutic dose, for the same symptom cluster (e.g., the addition of a low dose of haloperidol in a patient with a partial response to risperidone) or the addition of a medication that would not be used alone for the same symptom cluster (e.g., the addition of lithium in a person with major depression who is currently taking an antidepressant).
5. **Total Polypharmacy:** The total count of medications used in a patient, or total drug load. Consideration of total polypharmacy should include prescription medications, over-the-counter medications, alternative medical therapies, and elicit pharmacological agents.

The *Technical Report* states that current research does not provide evidence to justify same-class polypharmacy. However, it does state that there is increasing evidence of a number of situations where multi-class polypharmacy, adjunctive polypharmacy, and augmentation are safe and effective treatments.[4]

THE PREVALENCE AND PROBLEM OF POLYPHARMACY

The use of psychiatric polypharmacy has increased yearly.[1] In a Medicaid data analysis study of patients diagnosed with schizophrenia, it was shown that there was a four-fold increase in the amount of polypharmacy between 1999 and 2005.[1]

Despite little empirical support, the concurrent use of two or more antipsychotic medications is a common real-world occurrence in the treatment of serious mental illness. Psychiatric disorders including schizophrenia, bipolar disorder, depression, personality disorders, and substance abuse place patients at higher risk for polypharmacy.[3] Patients with affective and psychotic disorders are commonly prescribed various combinations of antipsychotics, mood stabilizers, antidepressants, anxiolytics, antihistamines, and anticholinergics. In addition, patients that have multiple medical and psychiatric conditions are often prescribed multi-drug regimens to treat the conditions.

The available data shows little evidence of support for the practice, except for the potential value of adding a second antipsychotic medication to clozapine patients with otherwise treatment-refractory schizophrenia,[5] although this has been challenged.[6] There appears to be wide agreement that monotherapy has to be preferred because of the lack of evidence of the efficacy of combinations of antipsychotic polypharmacy and other forms of polypharmacy is poor.[6]

Polypharmacy is especially prevalent in patients with chronic diseases and in older patients. Polypharmacy is often times more problematic in patients age 65 and older due to the presence of many co-occurring physical ailments, all of which need to be treated.[7]

In patients between the ages of 45-65 compared to those 18-44 years, office visits were more likely to result in the issuing of two or more prescriptions for psychotropic medications.[1] In addition, it was shown that office visits were more likely to result in the writing of two or more prescriptions for (1) psychiatric medications if patients were diagnosed with major depression, bipolar disorder, anxiety disorders, or schizophrenia compared with other diagnoses; (2) patients with comorbid disorders compared to those with a single disorders; and (3) patients covered by public insurance compared to private insurance.[1]

A primary problem with polypharmacy in behavioral health lies in the fact that the greater number of medications used, the greater the possibility of cumulative toxicity and the likelihood that adverse events and drug interactions will emerge and be treated, sometimes being mistaken for psychopathology.[3] In addition, adherence issues can arise with increasing regimen complexity.

Polypharmacy has been associated with increased injury and mortality rates. For example, it has been reported that each year more than 700,000 people visit emergency rooms each year as a result of adverse drug reactions and 106,000 Americans die from *properly prescribed* and *correctly taken* medications.[8] The cause of death in many of the cases has been linked to drug-to-drug interactions. It has also been found that the likelihood of death or hospitalization is directly proportional to the number of medications a patient is taking, accounting for those medications being taken for underlying diseases.[9] One third of all hospitalizations of older adults over the age of 65 are thought to occur as a consequence of some type of problem with their medications. The added cost burden to the healthcare system approaches $200 billion per year.[10] It was also found that there is an increased risk of death for patients on psychiatric polypharmacy involving an antipsychotic medication and a benzodiazepine.[11]

Drug-to-drug interaction information is most useful in preventing unintended outcomes when available at the point of prescribing, such as those available in select electronic prescribing systems. The use of multiple medications increases the risk of patient noncompliance and medication errors.[12] Further, multiple medications may confound the effects of one another. For a patient taking multiple medications, a prescriber may not be able to determine which medications are helping, and which ones are causing problems. If medications are added to treat the side effects of another medication, polypharmacy may create the need for even more medications, thus adding to the problem.

OCCURRENCE OF POLYPHARMACY

Werder and Preskorn state that polypharmacy typically occurs in five prescribing situations: [3]

1. Attempting to treat multiple illnesses
2. Attempting to control symptomatology
3. Attempting to accelerate the onset of action or augment the effects of a preceding drug

4. Attempting to treat phasic illnesses, such as many affective, anxiety, seizure, and neurodegenerative disorders
5. Attempting to prevent or treat adverse effects of other drugs

Tandon states some additional reasons for the occurrence of polypharmacy:[5]

1. Proper and interrupted cross-titration during switching between antipsychotic medications
2. Failure of antipsychotic monotherapy (number of agents, dose, duration, clozapine)
3. Different mechanism of action of the different antipsychotic agents
4. Different route of administration (transition to monotherapy is the preferred option but the targeted use of two antipsychotic medications with different routes of administration may sometimes be appropriate)

Dr. Steven Kingsbury and his fellow researchers point out several situations in which contra-therapeutic (or "irrational polypharmacy" as they call it) may occur: [12]

1. **Fear and laziness:** This occurs when a patient continues not to do well so the clinician keeps adding medications, afraid to withdraw any for fear of making the patient worse. It may also occur when a patient is doing well and the clinician is afraid to remove any medications so as not to "rock the boat."
2. **Sloppy diagnosis:** Clinicians simply treat presenting symptoms without gathering more detailed information about the patient's symptoms and their relationship to the patient's primary illness. The result is that the clinician keeps adding more medications rather than simply adjusting current medications.
3. **Botched or stuck cross-titration:** During a titrating event, the clinician stops in the middle and leaves the patient on both medications because the patient has shown improvement or the clinician readjusts the dose of one medication while continuing to leave the patient on the second medication.
4. **Blind adherence to specifications listed in the Physician's Desk Reference without regard to good clinical judgment:** Clinicians follow the maximum dosing guidelines exactly and thus end up adding additional medications so not to exceed the recommended maximum dosing of a single drug, even though a higher dose of a single drug would be more effective than the addition of a second medication.
5. **Inadequate knowledge of receptor pharmacology or lack of attention to it:** Clinicians either need more training in the area of receptor pharmacology or pay more attention to it. One example shows a patient suffering from schizophrenia was doing poorly on risperdone, so the clinician added haloperidol. Since risperdone is a strong antagonist for the dopamine D_2 receptor, adding haloperidol increases the risk of side effects.
6. **Need to rush:** Short hospital stays may create pressure to try to speed up a therapeutic response through polypharmacy, although there is no evidence that such an approach is effective.
7. **Poor exemplars:** Pharmaceutical industry-sponsored seminars may use speakers who are not experts but who promote the use of a company's medication in combination with other medications in situations that have not been studied. The recommendations of the less-than-expert speakers may encourage poorly planned polypharmacy.

8. **Magical thinking**: Word-of-mouth reports from various clinicians about their perceived positive experiences with using medications of the same class on the same patient may encourage the use of less-than-appropriate polypharmacy.

In testimony given to the U.S. Senate, the Inspector General for Health and Human Services provided a more dramatic hypothesis for the increase in psychiatric drug use in the older adult population. He asserted that over many years drug manufacturers have illegally marketed their products for off-label use. He used Eli Lilly's drug, Zyprexa, as an example. He stated that the drug company directed its sales representatives to promote the drug as a sleep agent. As a result, in 2009, the drug company pled guilty and paid $1.4 billion for the illegal promotion of Zyprexa. He went on to state that several other drug companies have settled Government allegations that they improperly marketed and promoted their antipsychotic medications for unapproved uses and/or have paid kickbacks to influence prescribing.[7] Unfortunately, even though these practices may have stopped, their effect on prescribing patterns may be long-lasting.

PRINCIPLES FOR PRACTICING POLYPHARMACY

In light of the scant evidence of the efficacy or safety of Polypharmacy, the use of antipsychotic combinations is discouraged and warrants scrutiny.[5] It is recommended that better proven treatment strategies should be tried before a trial of antipsychotic Polypharmacy is initiated.[5] If a combination of antipsychotic medications is going to be used, it is recommended that it only be done after finding that optimal use of each medication of the combination is ineffective without the other. He states that if psychiatric Polypharmacy is used, it should be monitored on an ongoing basis using measurement-based psychiatry, including simple clinician and/or self-rating scales.[5]

If a patient is on psychiatric polypharmacy, efforts should be tried to switch a patient back to monotherapy. Importantly, researchers have shown that switching from a combination of two antipsychotics to monotherapy is successful in two-thirds of patients.[14]

The *NASMHPD Medical Directors' Technical Report on Psychiatric Polypharmacy* has provided the following guidelines for avoiding contra-therapeutic polypharmacy:[4]

- In general, same-class polypharmacy should not be used to treat the same symptoms in a patient.

- More than one medication from any of the following medication classes should not be used in a single patient:

    - Typical antipsychotics (haloperidol, fluphenazine, etc.)
    - Selective serotonin reuptake inhibitors (paroxetine, fluoxetine, etc.)
    - Tricyclic antidepressants (amitryptiline, imipramine, etc.)
    - Monoamine oxidase inhibitors (phenelzine, tranylcypromine)
    - Stimulants (methylpheniadate, amphetamine)
    - Benzodiazepines (diazepam, alprazolam, etc.)

- More than two antipsychotic medications, typical or atypical, should not be used simultaneously.

- The dose of a medication should not be adjusted until the medication serum level has reached steady state and sufficient time to achieve therapeutic effect has passed

AVOIDING POLYPHARMACY

Researchers Dr. Steven Werder and Dr. Sheldon Preskorn suggest using the mnemonics SAIL and TIDE to help avoid polypharmacy:[3]

S: *Simple*…Keep the drug regimen as simple as possible. Aim for once daily or twice daily dosing and avoid complex drug regimens.

A: *Adverse Effects*…Understand the adverse effects of each drug and potential drug to drug interactions.

I: *Indication*…Each prescribed drug should have a clear indication and a well-defined therapeutic goal. Prescribe using evidence-based medicine as much as is practical.

L: *List*…List the name and dosage of each drug in the patient's chart, and provide this information to the patient. Consider using computerized systems and feedback procedures, which have been shown to decrease polypharmacy and drug to drug interactions.

T: *Time*…Allow time when meeting with patients to address medication issues.

I: *Individual*…Understand individual variability, pharmacokinetics, and pharmacodynamics when prescribing. Review with the patient all prescription and nonprescription drugs and dietary supplements being taken.

D: *Drug-Drug Interactions*…Be careful to avoid potentially dangerous drug-drug interactions, especially those associated with serious adverse events.

E: *Educate*…Educate patients and their significant others and families regarding drug and non-drug treatments. Explain potential adverse effects of each drug and potential drug-drug interactions.

SUMMARY

The prevalence of psychiatric polypharmacy is constantly increasing despite a lack of empirical evidence proving its efficacy. Psychiatric polypharmacy can be harmful to patients and is expensive. Despite the negative aspects associated with it, it has been shown to improve some patients' conditions. Whenever used, psychiatric polypharmacy must be closely monitored and managed.

TOOLS FOR MANAGING POLYPHARMACY: ELECTRONIC PRESCRIBING AND MEDICATION MANAGEMENT

One of the most efficient ways to manage polypharmacy is through an electronic prescribing and medication management system. Such systems can collect prescribing data and present it in meaningful ways to clinicians. In addition, electronic systems can facilitate the medication reconciliation process by electronically collecting and presenting all the medications a patient is taking from a variety of prescribers. One such system available is Netsmart's OrderConnect™.

OrderConnect is a secure, web-based electronic prescribing and medication management system. In addition to providing the ability to order medications, it also has the option of being able to order lab tests and radiology tests. The system can be utilized anywhere one has access to the internet via an Internet Explorer browser. OrderConnect allows clinicians to improve quality of care and reduce medication errors. OrderConnect's Virtual Pharmacist improves clinicians' access to clinical information while prescribing patient medications, including:

- Potential drug-drug/food interactions, contraindications, drug allergy and pregnancy alerts
- Peer medication dosing patterns
- On-line access to clinical resources
- Patient medication education materials and consent forms

OrderConnect improves risk management efforts. An optional medication reconciliation feature allows prescribers to see, on a single screen, the medications he/she is prescribing, the medications the patient has reported he is taking, and medications provided by other providers. The medication reconciliation process is essential to help manage polypharmacy.

OrderConnect provides automatic drug interaction alerts assist in the clinical decision-making process. Medication errors are reduced by eliminating handwritten prescriptions. The application also enhances care team communication; all system users are aware of the patient's prescription profile.

Furthermore, it provides real-time reports to improve practice. The centralization of information via OrderConnect allows an organization to easily review dosing patterns, patient medication needs, prescriber choices and clinical workflow.

OrderConnect saves nursing and administrative time by automating reports and documentation that is traditionally managed by staff. The system also provides the ability to electronically input and track medication data. It provides reports for:

- Managing polypharmacy
- Managing prescription reorders and refills
- Analyzing medication usage, including dosing patterns
- Diagnosis review
- Budgeting and cost control efforts
- Improving operational efficiency

AN EXAMPLE OF ORDERCONNECT'S POLYPHARMACY REPORTING

As an example of how OrderConnect can help manage polypharmacy, actual screen shots taken from the application are presented along with a sample scenario of how it might be used.

Let's assume that a clinical director at an agency is concerned that some patients who were switched to a new antipsychotic medication may still be taking other atypical antipsychotic medications simultaneously. The clinical director thus goes into OrderConnect's Standard Reports section and chooses the Polypharmacy Report and enters her search criteria. She chooses the relatively new drug, Abilify, against which to look for polypharmacy. She is thus presented with the information (see Figure 1).

Health Center
Medication Combination Therapy Report

Facility: Health Center | Medication Category: Antipsychotic Medications | Medication: Abilify | GO

Antipsychotic Medications: aripiprazole

Cases	Pct.	Monotherapy	Anti-anxiety	Anti-depressant	Anti-obsessional	Anti-psychotic	Dementia	Mood Stabilizers	Sedative/Hypnotic	Stimulants
1	20%	1	0	0	0	0	0	0	0	0
1	20%	0	0	1	0	0	0	0	0	0
1	20%	0	0	1	0	1	0	0	0	0
1	20%	0	0	2	0	0	0	0	0	0
1	20%	0	1	2	0	3	0	0	0	2

*Please Note: This report must be printed in landscape format.

Figure 1: Polypharmacy Overview

Reviewing the screen, she immediately sees she has one patient taking Abilify by itself (monotherapy), one patient taking Abilify and an antidepressant (line two), one patient taking Abilify and an antidepressant and another antipsychotic (line three), one patient taking Abilify and two antidepressants (line four), and finally, one patient taking Abilify and an antianxiety, two antidepressants, three other antipsychotics, and two stimulants (line 5).

The clinical director begins her review by choosing the patient taking Abilify plus an antidepressant and another antipsychotic. She clicks on the line containing the information and is presented with the information (see Figure 2).

Figure 2: Polypharmacy Details

Next, she wants to identify the patient taking the medications. She clicks on the appropriate link and is presented with the information (see Figure 3).

Figure 3: Individual Patient Polypharmacy Details

The clinical director can see the details of orders as well as the prescriber information. If she wants to see the patient's entire medication history, she would simply click on the patient name and would be presented with the history.

NETSMART'S COMMITMENT TO CLINICIANS TO TRANSFORM THE INDUSTRY

Through innovative and interactive solutions and services, Netsmart leads our industry in transforming the way care is delivered. Our expertise in helping organizations navigate their way through Meaningful Use and Accountable Care shows our commitment to partnering with organizations of all sizes to ensure they have the technology and know-how they need to deliver the highest level of care to those they serve. Healthcare today is an ever-changing, rapidly-evolving world. Organizations must seek technology partners who understand their current needs and have their pulse on the industry to envision how needs can be met in the future. Our obligation is to guide our clients through this rapidly changing environment by providing them with solutions and services that help improve outcomes and reduce costs. We will help each of our clients adapt to these changes so that they can reach their goals and improve the health of the populations they serve.

At Netsmart, we are at the forefront of healthcare innovation and moving forward at the speed of thought. We continue to evolve our services and solutions to meet the needs of our clients today and in the future. We are committed to ensuring that our clients in behavioral health, public health, substance abuse and addiction services emerge from the healthcare reform era as leaders in their respective fields of specialization.

ABOUT THE AUTHOR

Charles Klein, Ph.D., is general manager of Medication Management and Pharmacy for Netsmart. He holds a master's degree in counseling psychology from the University of Kansas and masters' and doctorate degrees in industrial/organizational psychology from USIU in San Diego. He also holds a certificate in organizational development. Dr. Klein has more than 23 years of experience in the behavioral health field directing inpatient and outpatient child, adolescent and adult programs, as well as consulting in areas such as clinical documentation, performance improvement, and organizational development. In addition, he developed and implemented clinical outcomes measurement systems and directed the start-up of many behavioral health day treatment programs for persons with serious and persistent mental illnesses.

Dr. Klein also teaches as an adjunct professor at Alliant International University, teaching courses in the College of Organizational Studies, including Human Resource Management, Performance Appraisal, Work Motivation and Productivity, Negotiation and Bargaining, Professional Development, and Industrial/Organizational Psychology.

Dr. Klein works in the area of clinical services at Netsmart, participating in customer workflow issues, clinical gap analyses, and prescribing and medication management processes. Dr. Klein has also written courses for Netsmart University's catalogue. In addition, Dr. Klein presents at conferences and gatherings.

> *For more information or to talk one-on-one to a Netsmart representative about how Netsmart's solutions can help you provide the highest level of clinical outcomes, visit www.ntst.com or call 1.800.472.5509.*

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