

Extrapyramidal Side Effect Monitoring in the Inpatient Behavioral Health Setting

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Extrapyramidal side effects (EPSEs) are a known adverse effect reported in clients using antipsychotic medications and, less commonly, antiepileptic drugs (Cornett et al., 2017). Broadly, EPSEs refer to a cluster of drug-induced signs and symptoms, including parkinsonism, dystonia, akathisia, malignant neuroleptic syndrome, and tardive dyskinesia (Musco et al., 2019; Fahn et al., 2011, as cited in Morkl et al., 2020). In psychiatric care, the use of antipsychotic and antiepileptic agents is commonplace (Ali et al., 2021; Videbeck, 2020). Accordingly, mental health clinicians can expect to encounter clients suffering from EPSEs in their practice regularly. Nevertheless, clinicians frequently fail to recognize EPSEs (Roiter et al., 2020; Butler & Chandrakanth, 2016). Because these adverse effects are unpleasant for clients, a relevant clinical concern is minimizing the time between the onset of EPSEs and treatment. Delayed recognition of EPSEs prolongs suffering and could reduce compliance with therapy (Ali et al., 2021; Barnes & McPhillips, 1996, as cited Butler & Chandrakanth, 2016). This student believes that given mental health patients' increased risk of EPSEs and their potential to profoundly affect outcomes, exploring possible changes in practice, education, and research to promote early recognition of EPSEs is warranted. Recommendations this student makes are based on his review of the literature and intended to address the Quality and Safety Education for Nurses competencies of safety and evidence-based practice (Quality and Safety Education for Nurses Institute [QSEN], n.d.).

Literature Review

Antipsychotic-induced Extrapyramidal Side Effects: A Systematic Review and Meta-Analysis of Observational Studies.

Ali et al. (2021) performed a systematic review and meta-analysis of 15 observational studies to estimate the prevalence of antipsychotic-induced EPSEs. Of the selected studies, 11 were in the hospital setting (Ali et al., 2021). After sensitivity analysis, the authors found that the pooled prevalence of antipsychotic-induced EPSE was 31% (Ali et al., 2021). Ali et al. (2021) report that parkinsonian symptoms were the most prevalent at 20%, while tardive dyskinesias were least common at 7%. Recommendations from the study include early management, selecting drugs less likely to cause EPSEs, and psycho-education (Ali et al., 2021).

The results of this study speak to the high prevalence of EPSEs in clients taking antipsychotics. It follows that clinicians working on units where antipsychotic therapy is widespread can anticipate encountering EPSEs. Furthermore, the authors recommend early management as a priority (Ali et al., 2021). Implicitly, this requires that nurses can recognize EPSEs when they arise. This research concerns the QSEN competency of safety in that it speaks to the prevalence of a risk to client well-being and stresses prompt intervention (QSEN, n.d.). Specifically, QSEN (n.d.) calls on nurses to communicate hazard-related concerns to the health care team. Fulfilling this directive necessitates knowledge that risk to client safety exists.

Characteristics of Patients Experiencing Extrapyrarnidal Symptoms or Other Movement Disorders Related to Dopamine Receptor Blocking Agent Therapy

Musco et al. (2019) conducted a manual review of all suspected incidents of extrapyramidal side effects and other movement disorders at a single, large hospital over five years. The research attempts to verify the occurrence of EPSEs and identify patient risk factors (Musco et al., 2019). Researchers characterized patients according to the domains of age, sex, BMI, and specifics about their treatment (Musco et al., 2019). Musco et al. (2019) note that the patients selected for the study tended to be middle-aged, overweight, and female. Moreover, the authors found that events were most common in patients taking second-generation antipsychotics, particularly quetiapine (Musco et al., 2019). However, it is critical to understand that prescribers select them more frequently than first-generation agents (Musco et al., 2019). Historical data and the theoretical basis for EPSEs suggest that first-generation drugs, which exhibit more significant dopamine inhibition, are more likely to cause EPSEs (Musco et al., 2019). Unsurprisingly, Musco et al. (2019) establish in their data that these medications cause akathisia and neuroleptic malignant syndrome more often than newer drugs.

These results have direct relevance to the clinical problem of concern. Ultimately, the goal is to promote early recognition of EPSEs. It then behooves nurses to understand patient characteristics and drug choice as inputs and particular EPS subtypes as a potential adverse outcome. A broad awareness that antipsychotics as a class increase the risk of EPSEs is not adequate. Instead, the nurse would optimally know which subtypes for which a given patient is at increased risk. For instance, dystonia correlates with low BMI (Musco et al., 2019). The applicable QSEN competency for this study is evidence-based practice (QSEN, n.d.). QSEN (n.d.) suggests nurses

develop the skill of reading original research concerning an area of practice. Furthermore, a core attitude associated with the competency is to appreciate the need to improve after learning new knowledge (QSEN, n.d.).

Extrapyramidal reactions following treatment with antidepressants: Results of the AMSP multinational drug surveillance programme

While the link between antipsychotics and EPSEs is well established in the literature, considerably less is known about the risk posed by antidepressants (Morkl et al., 2020). In this study, Morkl et al. (2020) examine data from a multicenter drug surveillance program to determine the relative risk of EPSEs from antidepressant therapy and commonalities between these patients. The authors found that EPSEs linked solely to antidepressant use are exceptionally rare; out of over 243,000 cases, only 15 patients developed EPSEs from either monotherapy or a combination of antidepressants alone (Morkl et al., 2020). Notably, almost all cases involved using a selective serotonin reuptake inhibitor (Morkl et al., 2020). According to Morkl et al. (2020), the most common subtype for this group was atypical dyskinesia; however, akathisia, acute dystonia, and parkinsonism also occurred.

This study lends direction concerning valuable future research. Although EPSEs arising from antidepressant monotherapy are uncommon, their occurrence suggests a mechanism for EPSEs independent of postsynaptic dopamine-2 receptor blockade (Morkl et al., 2020). The finding begs the question of whether clients taking antidepressants in combination with antipsychotics are at a higher risk for EPSEs than those on antipsychotic drugs alone. The relevant QSEN competency, given the basis for future research, is evidence-based practice (QSEN, n.d.). In this domain, QSEN (n.d.) advocates the skill of questioning existing rationales when they lead to suboptimal outcomes or adverse events. Exploring the potential of antidepressant use as a compounding risk factor for EPSEs challenges the more conventional perception of EPSEs as primarily an antipsychotic-related phenomenon (Morkl et al., 2020).

Monitoring of Extrapyramidal Side Effects in Patients on Antipsychotic Treatment: A Completed Audit Cycle

Butler and Chandrakanth (2016) assert that clinician assessment and recognition of EPSEs has historically been poor because of inadequate training. In their study, the authors audit the records of clinic outpatients receiving antipsychotics before and after an assessment education session (Butler & Chandrakanth, 2016).

Following the intervention, Butler and Chandrakanth (2016) found that clinicians assessed for EPSEs and documented doing so more frequently. The measure was particularly effective among non-consultant hospital doctors; in that group, Butler and Chandrakanth (2016) observed an increase in documented EPSEs assessment from 0% to 75%.

The authors' work addresses a barrier to recognizing EPSEs early. Moreover, they propose a viable solution and demonstrate its effectiveness (Butler & Chandrakanth, 2016). Although the educational intervention administered by Butler and Chandrakanth (2016) targets outpatient clinicians, this student believes the results warrant studying similar measures in a hospital setting. QSEN intends that the safety competency minimize patient harm through effective systems and individual performance (QSEN, n.d.). The authors of this study accomplish this goal on both counts; by strengthening the assessment skills and awareness of individual clinicians, the clinic in the study improved overall at identifying EPSEs (Butler & Chandrakanth, 2016).

Psychotropic medications induced parkinsonism and akathisia in people attending follow-up treatment at Jimma Medical Center, Psychiatry Clinic.

Kumsa et al. (2020) perform a cross-sectional study at a hospital psychiatry clinic to explore the incidence of EPSE subtypes among psychiatric patients. The researchers assessed selected patients for parkinsonism and akathisia with the Extrapyraximal Symptom Rating Scale (ESRS) (Kumsa et al., 2020). Respectively, 54.2% and 52.9% of subjects that developed parkinsonism and akathisia used first-generation antipsychotics (Kumsa et al., 2020). Moreover, clients taking first-generation agents were nearly three times more likely to experience parkinsonism than those taking second-generation drugs alone (Kumsa et al., 2020). Kumsa et al. (2020) further found that the incidence of akathisia was nearly four times higher in females.

The research highlights the risk of EPSEs posed by antipsychotic therapy, particularly first-generation agents (Kumsa et al., 2020). Kumsa et al. (2020) also identify factors associated with two EPSE subtypes. This information is helpful to nurses because it gives further insight into patients at risk for EPSEs. Accordingly, it serves the QSEN competency of evidence-based practice (QSEN, n.d.). QSEN (n.d.) provides that this domain calls clinicians to integrate current evidence with their judgment to deliver the best possible care.

Case Study

On October 20, 2021, this student observed the operations of the inpatient behavioral health unit at Sarah Bush Lincoln Health Center, Mattoon, Illinois. During that experience, the student participated in the care of S.M., who is a Caucasian male in his mid-20s. S.M. received a scheduled dose of lamotrigine at approximately 0800. At about 1030, the client approached the unit nurse's station and stated, "I feel like my eyes are being forced to look up." S.M. estimated that this symptom started and gradually worsened over the hour before contacting the nurse. The student nurse alerted his preceptor, who, in turn, assessed the patient. Based on that assessment, the preceptor felt unsure whether S.M. was experiencing EPSE or exhibiting attention-seeking behavior. The nurse subsequently contacted the attending psychiatrist concerning the complaint. Upon examination, the psychiatrist determined that S.M. was experiencing an oculogyric crisis, a relatively uncommon extrapyramidal symptom. Ultimately, S.M.'s symptoms rapidly resolved following the administration of benztropine 2 mg I.M. per the physician's order. During the week following this encounter, this student discussed unit practices regarding EPSEs with his preceptor. He learned that no specific monitoring protocol for EPSEs exists. Nurses on the unit typically discover EPSEs following a patient complaint or incidental to encountering the patient for other reasons.

Upon reflection, a crucial observation is that nursing staff failed to recognize S.M.'s complaints as an extrapyramidal symptom independently. While the preceptor and student each had several years of experience caring for patients taking antipsychotic and anticonvulsant medications, neither had observed an oculogyric crisis in their practice before. In this instance, the provider was on the unit and able to quickly evaluate S.M. Nevertheless, two things occur to this student. First, the nurse cannot always assume that a physician is physically nearby and immediately available. Secondly, any possible reduction in the duration of a client's unpleasant symptoms is desirable. Early identification by nursing staff, particularly when the patient has an existing as-needed order for benztropine, can significantly reduce the client's wait for symptomatic relief.

Synthesis

The purpose of this paper is two-fold; establishing that its topic represents a significant clinical concern and offering suggestions to mitigate the problem. Concerning the former, this student believes that the facts justify

taking the recognition of EPSEs seriously. The available evidence suggests that EPSEs are prevalent in psychiatric patients, underrecognized, and can carry profound negative implications for patients (Kumsa et al., 2020; Roiter et al., 2020; Butler & Chandrakanth, 2016; Ali et al., 2021). Concerning mitigation, this student offers recommendations in three domains: practice, education, and research.

Recommendations for Practice

A particularly striking observation is that while tools to assess EPSEs exist, clinicians not utilizing them impedes identification (Butler & Chandrakanth, 2016). This student's own experience, as described in the case study, is consistent with the literature; at Sarah Bush Lincoln's behavioral health unit, nurse recognition of EPSEs is incidental and depends on the nurse's ability to recognize EPSEs without tool assistance. While the use of any movement disorder scale is better than none, the ESRS offers several advantages over alternatives like the Simpson-Angus Scale (Kumsa et al., 2020). Specifically, the former includes subjective data in akathisia detection, rates tremors, and has superior validity and inter-rater reliability (Hoehn & Yahr, 1967, as cited in Kumsa et al., 2020; Chouinard et al., 1980, as cited Kumsa et al., 2020). Ideally, nurses would screen every patient taking a drug associated with EPSEs at each point of contact. However, administering these assessments is time-consuming (Butler & Chandrakanth, 2016). This student suggests the more pragmatic approach is for nurses to perform an abbreviated assessment, such as the one described by Butler and Chandrakanth (2016), each shift on all patients taking an antipsychotic drug. An abnormal finding using the abbreviated tool should prompt the nurse to administer a more in-depth examination, such as the ESRS. Finally, the nurse's clinical suspicion for EPSEs should rise in clients with additional risk factors, discussed further in this student's educational recommendations.

Recommendations for Education

Effectively using an EPSEs assessment tool demands that clinicians understand and feel comfortable using it. The literature suggests that inadequate training and low clinician confidence in their ability to assess EPSEs contributes to under-recognition (Kuruville et al., 2006, as cited in Butler & Chandrakanth, 2016). Given that the pooled incidence of EPSEs in patients taking antipsychotics is as high as 31%, ensuring that clinicians can confidently assess for them is crucial (Ali et al., 2021). Thus, this student recommends that behavioral health units

provide nursing staff with supplemental training on recognizing EPSEs, including validated assessment tools. Moreover, this teaching should instruct nurses on factors that increase client risk for EPSEs, including specific subtypes. First-generation antipsychotics, which inhibit dopamine more than atypical agents, increase the risk of akathisia and neuroleptic malignant syndrome (Musco et al., 2019). Kumsa et al. (2020) found that age, antipsychotic choice, physical illness, and concurrent use of anticholinergic drugs increased the risk of parkinsonism. Akathisia, in turn, is associated with high chlorpromazine equivalent doses, concurrent use of antipsychotics with sodium valproate, or Catha edulis abuse (Kumsa et al., 2020). Both conditions occur most frequently in women (Kumsa et al., 2020).

Recommendations for Future Research

Throughout his literature review, this student noted two apparent knowledge gaps. First, there is a paucity of research concerning staff education interventions, particularly in the inpatient setting. This student located a single trial conducted in an outpatient clinic (Butler & Chandrakanth, 2016). Trialing similar interventions in hospitals is warranted given the considerable benefits for patients the measure could yield. Next, this student notes observations in the literature that monotherapy with SSRIs or other antidepressants can cause EPSEs (Morkl et al., 2020). While the incidence of such cases is low, they nevertheless imply a mechanism for EPSEs aside from direct dopamine inhibition (Morkl et al., 2020). Further study could determine whether patients taking both antidepressants and antipsychotics experience a higher risk for EPSEs than those on antipsychotic monotherapy.

Conclusion

Given the prevalence of antipsychotic and antiepileptic drugs in the psychiatric setting, behavioral health nurses should prioritize early recognition of and intervention for EPSEs. In pursuit of this goal, unit managers can advocate for increased staff training on available assessment tools and risk factors. Furthermore, nurses should integrate the use of these tools, particularly the ESRS, into their practice. Finally, nurse researchers should study the efficacy of EPSEs education in inpatient facilities and whether SSRIs increase the risk of EPSEs in clients taking antipsychotics.

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