Improving the Management of Tardive Dyskinesia on an Inpatient Mental Health Unit

Jennifer L. Krebsbach

The College of St. Scholastica

NSG 8207: Clinical Project III

Dr. Pamela Bjorklund, PhD, APRN

April 24, 2022

Abstract

The purpose of this quality improvement project was to implement a practice change on the adult mental health unit at a rural hospital in the Upper Midwest to improve the accuracy and increase the rate of completion of the abnormal involuntary movement scale (AIMS). Results showed that post-intervention confidence levels improved among the RNs. The overall rate of completion of the AIMS increased by 50% for AIMS screening upon admission and 67% for total AIMS screening requirements among applicable patients. It can be concluded that revising the behavioral health AIMS flowsheet and expectations for documentation improved the rate of AIMS completion and supported improved management of tardive dyskinesia on the mental health unit.

Keywords: Tardive dyskinesia, abnormal involuntary movement scale, antipsychotics, mental health

Introduction

Tardive dyskinesia (TD) is a serious neurological disorder caused by taking antipsychotic medication (National Institute of Neurological Disorders and Stroke [NINDS], 2019). According to Robert (2019), TD affects an estimated 500,000 people who are taking antipsychotic medication in the United States (US), with an annual incidence of 15% to 30% after 1 year of treatment and a prevalence rate of 50% to 60%. The symptoms and movements of TD should not be confused with extrapyramidal symptoms (EPS), which appear with a quicker onset after taking antipsychotic medications and include akathisia, dystonia, and parkinsonism (Novick et al., 2010). Acute psychiatric inpatient units need to take responsibility for their part in early intervention and prevention of TD as antipsychotic medications are started, adjusted, and discontinued.

The most common mental illness for which antipsychotic medications are prescribed is schizophrenia (Robert, 2019; Caroff, 2019). However, the National Institute of Mental Health (NIMH) (2016) indicates that antipsychotic medications also are used in combination with other drugs for psychiatric disorders. Psychiatric prescribers need to be aware and understand the seriousness of TD and implement the appropriate intervention to manage TD in patients who may require antipsychotic medications as part of their treatment regimen.

Tardive dyskinesia is a medication-induced side effect, which occurs when a person takes antipsychotic medications by either oral or intramuscular route (Healthline, 2018). The term *tardive* means late and differentiates TD from other medication-induced EPS that may appear acutely after exposure to dopamine receptor blocking agents (UpToDate, 2018). TD was

recognized more than 50 years ago, although its pathophysiology remains poorly understood and explained (Palmer et al., 2019).

Background

Symptoms of TD appear as repetitive jerking movements, which occur in the face, neck, tongue, trunk, and extremities and are outside of the patient's control (National Alliance on Mental Illness [NAMI], 2016). Symptoms can appear anywhere from several weeks or months to several years after starting, adjusting, or discontinuing antipsychotic medication therapy (Healthline, 2018; Jain & Correll, 2018; Savitt & Jankovic, 2018). The symptoms range from mild to severe and are localized or widespread (Healthline, 2018; NIMH, 2016).

According to NAMI (2016), once TD develops, the effects may become permanent or take a long time to resolve. All antipsychotic medications can cause TD; some antipsychotics pose a higher risk than others. Anybody who takes antipsychotic medications is at risk. However, the risk of TD is higher in older adults, females, those with a family history of TD, or who have negative symptoms of schizophrenia, and people of African descent (NAMI, 2016). These factors are nonmodifiable. Modifiable lifestyle factors that increase the potential of TD and are important to regard include smoking, substance use, and uncontrolled diabetes. Additionally, the risk of developing permanent TD increases with a psychiatric prescriber's lack of knowledge and attention, leading to long-term patient exposure without intervention, while severe TD then can lead to medication nonadherence and increased risk of relapse and re-hospitalization (McEvoy et al., 2019). Moreover, patients with severe TD have higher rates of mortality and poorer quality of life (QoL).

Local Problem

Mental health registered nurses (RNs) at the clinical site for this project are responsible for completing the abnormal involuntary movement scale (AIMS) in accordance with standard admission orders of the inpatient mental health unit. The admission order is vague and confusing, not monitored, or adhered to. The order is automatically applied to all patients admitted to the mental health unit. It instructs the RN as follows: *AIMS screening if on antipsychotic medications, Prochlorperazine (Compazine) or Metoclopramide (Reglan) and not completed in last 6 months*.

The AIMS is a 12-point item checklist that takes roughly 10 minutes to complete and detects TD by recording occurrence and severity of movements in patients taking antipsychotic medications (Center for Quality Assessment and Improvement in Mental Health [CQAIMH], n.d.). The AIMS is relevant, applicable to all patients who take antipsychotic medications, and easy to administer. The AIMS has a higher interrater reliability than other screening tools (Lane et al., 2018). While the AIMS is reliable, the reliability is decreased when the mental health RN has limited experience working with patients with TD (Lane et al., 2018). Criticism of the AIMS among the mental health RNs at the project site are that it is time-consuming and they lack knowledge of the screening tool.

The mental health RNs at the site were limited to a one-time requirement to complete a computer-based education module that presented a video of a clinician completing the AIMS screening on a patient. The video was outdated and lacked elaborate and quality information about antipsychotic medications, skill practice, and how to document screening results in the electronic medical record. In recent years, this module was no longer assigned or available to RNs. Thus, they were not provided with adequate education on TD or the AIMS and were failing

to administer the screening. Prescribers were required to rely on their own assessment. This posed a risk for symptoms of TD to be overlooked and untreated.

Methods

Purpose and Design

The quality improvement (QI) project was conducted to improve the management of TD on an inpatient adult mental health unit. Currently, the abnormal involuntary movement scale (AIMS) is the screening instrument used at the project site by the adult mental health unit (AMHU) to detect TD. Consistent screening and subsequent documentation might facilitate better communication and provide accurate information to the prescribers to facilitate informed patient treatment decisions. Therefore, the purpose of this QI project was to implement a mental health nursing practice change on the AMHU to improve the accuracy and increase the rate of AIMS completion.

Population and Participants

This project was implemented on the AMHU of one of eight hospitals in a rural, Upper Midwestern health system. The hospital is the largest in the region with 489 available beds and a full spectrum of inpatient and outpatient services (CentraCare, 2020). The mental health unit is comprised of 20 private rooms, including two rooms designed for increased security and 1:1 monitoring called the behavioral intervention care unit. The mental health unit has two well-divided areas making up five beds on the adolescent unit and 15 beds on the adult unit.

The AMHU takes female and male adults who are out of high school, age 18 to geriatric. Admission criteria includes that the patient in crisis is at imminent risk to the safety of themselves or others and requires constant monitoring and treatment for stabilization and recovery. The AMHU is staffed around the clock with RNs and behavioral health technicians

who care for patients with a variety of diagnoses, including anxiety, depression, bipolar disorder, substance dependence or abuse, schizophrenia, personality disorders, and more.

The participants in this project were mental health RNs. Twenty-seven RNs (N = 27) were employed on the AMHU as of September 2021. Participants included females (n = 20) and males (n = 7) with a range of experience on the AMHU from 22 years to less than 1 year since the date of hire. The majority of the RNs began working on the AMHU in the last 1 – 5 years (n = 19). The remaining RNs started on the AMHU over 5 years ago (n = 5) and within the last 1 year (n = 3). Mental health RNs were the targeted population due to their scope of practice, which included focused assessment, screening for TD, and documenting the AIMS. Tasks were within the typical range of work expectations on the AMHU. Inclusion criteria for the interventions and outcome measures capture mental health RNs specifically hired for the AMHU. Exclusion criteria eliminated float pool and adolescent unit RNs.

Due to changes with staffing on the AMHU, the final participants as of February 2022 included 27 RNs; however, four of the original RNs resigned or transitioned to another unit and four new RNs were hired, altering the female to male ratio to 19:8 and the work experience of 1 – 5 years, over 5 years, and less than 1 year to 15:5:7, respectively.

This project offered no direct benefits to participants other than to improve confidence in their skills and knowledge of TD and AIMS. The project proposal was reviewed by the institutional review boards (IRBs) of the regional health system and the project leader's academic affiliate and determined to be quality improvement (QI). No further review or approval was necessary.

Procedures

An e-mail was produced and sent to the AMHU RNs describing the background, purpose, and proposed outcome of this QI project. Subsequently, an online survey, comprised of five questions, was released to the RNs to determine the barriers they experienced in completing the AIMS screening, included in EPIC as a nursing order, on all applicable patients. The survey was available to the RNs via Microsoft Forms for 1 week in September 2021. Results and proposed revisions for EPIC were conveyed to the health system's informatics and optimization nurse as well as the application system specialist and analyst with the EPIC clinical team. Subsequently, a retrospective chart review was conducted on the patients admitted to the AMHU between the dates of September 1 to September 30, 2021. This time period was chosen to find a baseline rate of AIMS completion on patients taking antipsychotic medications.

Intervention

Several e-mails and meetings were arranged to manage the plans and revisions for implementation. The director and nurse educator for the behavioral health unit were updated via e-mail throughout this planning process. Final approval by all relevant stakeholders, including aforementioned teams, was received and EPIC released the changes for a system-wide go live on February 21, 2022.

Updates were made to the behavioral health AIMS flowsheet in EPIC. Per several discussions among the stakeholders, all revisions and updates were formatted and made for service to health system-wide behavioral health clinics and inpatient units. The changes were made to update the existing AIMS flowsheet to create a more accurate and user-friendly experience. The major changes included adding list choices to document *Completed*, *Refused,* or *Unable* with the option to provide a relevant comment as the RN moves through the AIMS checklist in the flowsheet; a new *Global Judgment* section; and a new *AIMS Results* row that

included indication for the RN. When a patient was admitted to the AMHU and they are on an antipsychotic medication at home and the AIMS had not been completed in any previous encounter within the last 6 months, then a new admission Required Document task to *Complete AIMS* populated in the Required Document list. If the patient was started on a new antipsychotic medication that did not include a prior to admission (PTA) medication, then a work task populated in the Worklist to remind staff to *Complete Baseline AIMS*. The task remained in place for each subsequent shift until an AIMS was documented in the flowsheet.

A follow-up e-mail was sent to the AMHU RNs providing the information applicable to the EPIC revisions. Instructions and screen shots were embedded in the e-mail to assist the RN in a step-by-step action procedure to complete the tasks as indicated. Attachments to this e-mail included an electronic version of an educational pamphlet on TD and AIMS, a list of antipsychotic medications, and a copy of the AIMS screening form. Additionally, the same information was provided in a hard copy format to every RN. The list of antipsychotic medications was printed front-and-back and laminated to a size capable of hanging from the RNs badge clip for ease of reference.

Sixty-three percent of RNs then received in-person training; the remaining RNs received the hard copy in their mailbox with instructions to contact the project leader for questions, concerns, or request for in-person training. The same packet of information was provided to the health unit coordinator and nurses' desk in a file folder labeled *TD and AIMS Info*. Additionally, a laminated AIMS screening form was placed in the folder to be reused by RNs as needed whilst conducting the AIMS screening with patients.

Subsequently, a retrospective chart review was conducted of the patients admitted to the unit between the dates of February 21 to March 22, 2022. This time period was chosen to find

the rate of AIMS completion on applicable patients taking antipsychotic medications to compare with pre-implementation data.

An e-mail was sent to the RNs for closure of the project. An online program evaluation survey was conducted to collect follow-up information. This was available to RNs via Microsoft Forms for 1 week in March 2022. Results were used to evaluate the project's success and provide the health system and mental health stakeholders with practice implications and future revisions as indicated.

Results

Data Analysis

Pre-implementation

The pre-survey was sent to 27 RNs employed on the AMHU at the project start date in September 2021. A 70% response rate (N = 19) was obtained. All responses remained anonymous.

Question 1 pertained to number of years worked on the AMHU. One respondent answered *less than 1 year* (n = 1), 14 respondents answered *1-5 years* (n = 14), three respondents answered *6-11 years* (n = 3), and one respondent answered *12 years or more* (n = 1). Question 2 pertained to confidence level in completing the AIMS screening for TD. No respondents answered *extremely confident* or *extremely not confident*. Twelve respondents answered *confident* (n = 12) and seven answered *not confident* (n = 7). Question 3 pertained to barriers to completing the AIMS. The first-choice answers, ranked in order from most selected to least selected by the respondents, were *Having the time to complete, Knowing how to complete the AIMS, Knowledge of TD, Knowing how to use the order, Knowing which medications are categorized as antipsychotics,* and *Knowing how to document*. The most common first choice

was *Having the time to complete* (47%, *n* = 9) followed by *Knowing how to complete AIMS* (42%, *n* = 8) and *Knowledge of TD* (21%, *n* = 4). Question 4 inquired the RNs perception on how often they completed the AIMS on newly admitted patients. Eight respondents answered *some applicable patients* (*n* = 8), seven respondents answered *rarely* (*n* = 7), and four answered *Never* (*n* = 4). No respondents answered *every applicable patient*. Question 5 was an optional free text to provide additional comments or questions. Two respondents commented:

> *I usually forget to complete the AIMS. I would do it if I would be reminded in the work list.*
>
> *It seems like a 'floating' order.*

The retrospective chart review pre-implementation found that 38 patients were admitted to the AMHU between the dates September 1 and September 30, 2021 (*N* = 38). Ten patients (26%, *n* = 10) had antipsychotic medications on the prior to admission (PTA) medication list. All of the applicable patients required the AIMS screening to be completed. Antipsychotic medications that qualified the patient for an AIMS screening were haloperidol, quetiapine, clozapine, aripiprazole, and lurasidone. One patient had two prescribed antipsychotic medications and the remaining patients had only one antipsychotic medication in their drug regimen.

None of the 10 admitted patients who needed AIMS screening received this intervention for appropriate management of TD. RNs were given as few as 2 days and up to 23 days from the time of admission to discharge to catch and complete the AIMS screening. Three patients were admitted for 1-3 days, five for 4-7 days, and one patient stayed longer than 1 week. The admitting RNs varied among work experience ranging from less than 1 year to 22 years of

service on the AMHU and only one RN was found noncompliant with the admission order on more than one occasion.

Post-implementation

The retrospective chart review post-implementation found that 43 patients (N = 43) were admitted to the AMHU between the dates February 21 and March 22, 2022. Twenty-three patients (53%, n = 23) had antipsychotic medications on the PTA medication list. Twenty-two of these patients required the AIMS screening to be completed as indicated by the nursing order in EPIC. Antipsychotic medications that qualified the patients for an AIMS screening were quetiapine, olanzapine, paliperidone, Invega Sustenna (i.e., long-acting injectable of paliperidone), lurasidone, risperidone, aripiprazole, prochlorperazine, and ziprasidone. Two patients had two prescribed antipsychotic medications and the remaining had only one prescribed antipsychotic medication as part of their drug regimen.

Eleven patients (50%, n = 11) received AIMS screening by RNs on or around the time of admission. One of these patients was administered the AIMS within the previous 6 months; however, it was completed on admission during the study period as the antipsychotic medication remained on the PTA medication list.

Overall, RNs had as few as 1 day and up to 16 days from the time of admission to discharge to catch and complete the AIMS screening. Seven patients remained admitted on the AMHU at the end of the study period, three of whom still not been screened (43%). Of the 11 completed screenings, three patients (n = 3) were screened on the day of admission, five patients (n = 5) were screened within the first 3 days of admission, and the remaining (n = 2) were screened within 1 week of their admission date. One patient refused screening 3 times prior to the RN successfully achieving a meaningful AIMS screening form in its entirety. This took 10

days from the date of admission. Again, the RNs admitting and completing the AIMS screening varied in work experience ranging from less than 1 year (new hires) to 22 years of service on the AMHU.

Eight patients (19%, *n* = 8) were admitted without any antipsychotic medications on their PTA medication list but were later started on an antipsychotic medication for the first time, which necessitated a baseline AIMS be completed. Two out of eight (25%, *n* = 2) patients received baseline AIMS screening as required by the new guidelines of this QI project.

A 6-question program evaluation survey was created and administered to 27 RNs employed on the AMHU as of February 2022. Compared to the first group of RNs at the start of this project, 23 RNs remained consistent, four RNs resigned or transferred units within the hospital, and four RNs were new hires beginning September 2021 or later. A 22% response rate (*N* = 6) was obtained. All responses remained anonymous.

Question 1 pertained to their confidence level in completing the AIMS. Four respondents answered *Extremely confident* (66%, *n* = 4) and two respondents answered *Somewhat confident* (33%, *n* = 2). No respondents answered *Somewhat not confident* or *Extremely not confident*. Questions 2 - 4 pertained to whether the addition of *Complete AIMS* in the Required Document list in EPIC and the addition of *Complete Baseline AIMS* in the worklist in EPIC was helpful to the RN. All respondents (100%, *n* = 6) answered *Yes* to both questions. Follow-up statements for Question 3 pertaining to the Required Document list included:

It was a good reminder.

Always nice to have a reminder to complete tasks.

A very nice reminder.

It's a good reminder for the many things we need to watch for. This way it doesn't give the nurse an excuse to not get it done.

Yes, very helpful that is included on the Req Doc list…

A good reminder that it needs to be completed upon admission.

Follow-up statements for Question 4 pertaining to the worklist included:

It was a great reminder.

Yes, don't have to search for it, easy to access it.

A very nice reminder!

It allows for more clarity on what needs to be done.

Yes, very much.

A helpful reminder.

The final question was an optional free text that requested additional comments and suggestions. Responses included the following:

Great idea for a project, keep up the good work!

Thank you!

This will prevent a lot of missed baseline AIMS :)

This was a perfect project that [the health system] leadership should have seen MANY years ago! Way to go [Project leader] for doing what others didn't.

I actually enjoy doing the AIMS exam with patients.

This project has helped to emphasize the importance of this screening and given us some tools to make sure that it gets done!

Ethical Considerations

This project was conducted ethically and legally to protect human participants. The American Nurses Association (ANA) *Code of Ethics for Nurses* was followed. To ensure Health Insurance Portability and Accountability Act (HIPAA) compliance, all confidential health information was handled with care and security and data included no patient information. No consent was required for participation in this QI project, which was part of expected nursing workload. Approval was obtained from the relevant institutional review boards, the director and nurse educator of the behavioral health units, and the health system's mental health practice care council (MHPCC).

Limitations

The QI project was conducted on an inpatient mental health unit that relied on e-mail communication and online resources for data collection. Ultimately, RN participation in the surveys and execution of revisions to the AIMS flowsheet in EPIC was voluntary. Despite the project leader's efforts to remain available in person and in follow-up e-mails, all data were limited by self-report of the RNs. The survey, specifically the program evaluation survey, did not generate enough responses to produce significant results.

Summary of Findings

Findings included that the mean number of years of work experience on the AMHU is 3 years. The mode of work experience was 1-5 years. Overall, the survey response before and after the project implementation was too minimal to produce statistically significant results. However, results were meaningful. Among the responses produced, it appeared generally that the confidence level among RNs with respect to knowledge of AIMS screening and TD may have increased marginally. The rate of AIMS completion increased by 50%. Overall, in comparison to

the total number of patients who required an AIMS screening, baseline or routine, the absolute rate of completion was 67% compared with 0% pre-project implementation.

Discussion and Recommendations

It is evident that with teaching, time, and reminders that the AIMS screening is a feasible part of the current workload. With support and education, the RNs feel more confident and actually enjoy completing the AIMS screening with their patients. It is a time for rapport building and to allow patients to ask questions and better understand their treatment.

AIMS screening should be administered to the patients several times over the course of treatment with antipsychotics. Theoretically, due to the nature of onset and severity of symptoms, AIMS screening should be completed at baseline prior to first dose of an antipsychotic medication, at the junction of adjustment in dosing of an antipsychotic, at discontinuation, once stabilized on a medication at intervals of every 3 months for first-generation antipsychotics and every 6 months for second-generation antipsychotics, and as needed per patient request or clinician discretion based on risk factors for TD. These guidelines are based on the thought that TD can occur at any juncture related to changes in medication dosing, discontinuation, or initiation of an antipsychotic (UpToDate, 2018).

Practice implications include implementing additional screening intervals into EPIC for more regular monitoring, especially in the outpatient setting. To simplify or apply this concept more feasibly, the AIMS screening could continue to be required for all patients admitted on an antipsychotic medication, on weekly-basis, and at discharge for the inpatient units. Clinic and outpatient settings would benefit from more frequent screenings to include baseline, initiation, switching, and discontinuation, and every 3-month versus 6-month intervals for 1 year, then yearly thereafter. The goal is to advocate for patients who are taking antipsychotic medications,

catch the symptoms early, provide the appropriate intervention to prevent relapse, and facilitate the highest quality of care possible to achieve a worthy quality of life.

Conclusion

Tardive dyskinesia is complex and can be debilitating for patients with mental illness who take antipsychotic medications. Several commonly prescribed antipsychotic medications are responsible for causing TD. Abnormal involuntary movements need to be appropriately recognized by psychiatric prescribers and mental health RNs and differentiated from symptoms of other neurodegenerative disorders. Early prevention and intervention are important in treatment, quality of life, and cultivating medication compliance. Proper education and training are necessary for mental health RNs to properly screen for TD and effectively communicate with prescribers. The AIMS is proven effective in screening for TD. It is imperative that mental health RNs be educated on TD and AIMS screening and be provided with a user-friendly documentation platform. Nursing practice changes that include revised and updated AIMS flowsheets, support and education for mental health RNs, and simple reminders to complete AIMS screening to better manage TD on inpatient units all lead to improved management of TD in patients taking antipsychotic medications.

Disclosure Statement

The author reports no conflict of interest.

References

Caroff, S.N., Mu, F., Ayyagari, R., Schilling, T., Abler, V., & Carroll, B. (2018). Hospital utilization rates following antipsychotic dose reduction: Implications for tardive dyskinesia. *BMC Psychiatry*, 18(*1*). https://doi.org.10.1186/s12888-018-1889-2

Center for Quality Assessment and Improvement in Mental Health [CQAIMH]. (n.d.). *Abnormal involuntary movement scale (AIMS) – Overview.* http://www.cqaimh.org/pdf/tool_aims.pdf

CentraCare. (2020). *St. Cloud Hospital.* https://www.centracare.com/locations/centracare-st-cloud-hospital/

Healthline. (2018). *Tardive dyskinesia.* https://www.healthline.com/health/tardive-dyskinesia

Jain, R. & Correll, C. (2018). Tardive dyskinesa: Recognition, patient assessment, and differential diagnosis. *Journal of Clinical Psychiatry*, *19*(*2*), 16-23. https://doi.org/10.4088/JCP.nu17034ah1c

Lane, R.D., Glazer, W.M., Hansen, T.E., Berman, W.H., & Kramer, S.I. (2018). Assessment of tardive dyskinesia using the abnormal involuntary movement scale. *The Journal of Nervous and Mental Disease*. *173*(*6*),*353-357.* http://doi.org.10.1097/00005053-198506000-00005

McEvoy, J., Gandhi, S.K., Rizio, A.A., Maher, S., Kosinski, M., Bjorner, J.B., & Carroll, B. (2019). Effect of tardive dyskinesia on quality of life in patients with bipolar disorder, major depressive disorder, and schizophrenia. *Quality of Life Research*. *28*, 3303-3312. https://doi.org/10.1007/s11136-019-02269-8

National Alliance on Mental Illness [NAMI]. (2016). *Tardive dyskinesia.* https://www.nami.org/learn-more/treatment/mental-health-medications/tardive-dyskinesia

National Institute of Mental Health [NIMH]. (2016). *Mental health Medications.* https://www.nimh.nih.gov/health/topics/mental-health-medications/index.shtml

National Institute of Neurological Disorders and Stroke [NINDS]. (2019). *Tardive dyskinesia information page.* https://www.ninds.nih.gov/disorders/all-disorders/tardive-dyskinesia-information-page

Novick, D., Haro, J.M., Bertsch, J., & Haddad, P.M. (2010). Incidence of extrapyramidal symptoms and tardive dyskinesia in schizophrenia. *Journal of Clinical Psychopharmacology, 30*(*5*), 531-540. https://doi.org/10.1097/JCP.0b013e3181f14098

Palmer, M., Campbell, A.R., Finegan, A., & Nelson, L.A. (2019). Identification, assessment, and clinical management of tardive dyskinesia: An update. *Psychiatric Times, 36*(*7*), 27-30. https://www.psychiatrictimes.com/cme/identification-assessment-and-clinical-management-tardive-dyskinesia-update

Robert, L. (2019). *Tardive dyskinesia facts and figures.* https://www.psychiatrictimes.com/tardive-dyskinesia/tardive-dyskinesia-facts-and-figures

Savitt, D & Jankovic, J. (2018). Tardive Syndromes. *Journal of the Neurological Sciences, 389*, 35-42. https://doi.org/10.1016/j.jns.2018.02.005

UpToDate. (2018). *Tardive dyskinesia: Etiology, risk factors, clinical features, and diagnosis.* https://www.uptodate.com/contents/tardive-dyskinesia-etiology-risk-factors-

clinical-features-and-diagnosis?search=tardive%20dyskinesia&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1