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CE FACULTY

CE Coordinator:
Margaret Woodruff, R.Ph,
B.Sc.Phm., MBA
Humber College
Clinical Editor:
Lu Ann Murdoch, B.Sc.Phm.
Author:
Ron Pohar, BScPhm
Reviewer:
Tim Fleming, President, CAPT

Schizophrenia

By Ron Pohar, BScPharm

Learning Objectives:

After completing this lesson, readers will be able to:

- 1) Describe the symptoms of schizophrenia
- 2) Describe the potential causes and risk factors for schizophrenia
- 3) Describe the demographics of the schizophrenia population
- 4) Be familiar with pharmacotherapy for schizophrenia and adverse effects
- 5) Be familiar with factors associated with nonadherence in schizophrenia and how these relate to the role of the pharmacy technician.

INTRODUCTION

Schizophrenia can be a substantial burden to individuals with the illness, affecting all aspects of their lives and impairing cognitive (mental), social, physical and emotional functioning. ¹ Individuals with schizophrenia find themselves at an increased risk for homelessness, unemployment, victimization, suicide and substance abuse. ² They are also at increased risk for a variety of medical illnesses, including heart disease, diabetes and respiratory disease. ² Overall life expectancy for an individual with schizophrenia is about 20 years shorter than for an individual without the disorder. ^{2,3}

The personal and societal consequences of schizophrenia can be reduced with appropriate treatment. Treatment goals in schizophrenia include reducing or eliminating symptoms, maximizing quality of life and functioning, and promoting and maintaining recovery from the disease. These goals are difficult to achieve, despite significant improvements in drug therapy over the past decade and improved

programs and services available for individuals with schizophrenia. As such, the burden of schizophrenia in Canada remains high.⁴

In everyday practice, pharmacy technicians will find themselves in contact with individuals with schizophrenia. By understanding the symptoms of the disease, its underlying causes and risk factors, pharmacy technicians will be better equipped to provide service and care to individuals with schizophrenia. Through increased dialogue and interaction with individuals with schizophrenia, pharmacy technicians can gain better insight as to when the additional attention of a pharmacist is required. In doing so, pharmacy technicians may find that they can help reduce the substantial burden of this often neglected, marginalized and under-serviced population.

What are the symptoms of schizophrenia?

Schizophrenia is a major psychotic disorder that is manifested by positive symptoms (delusions

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and hallucinations), negative symptoms (flattened affect – a severe reduction in emotional expressiveness, reduced thought and speech productivity, inability to experience pleasure, decreased initiation of goal-directed behaviour) and disorganized symptoms (disorganized speech, thoughts and behaviour, and poor attention).¹

How is schizophrenia diagnosed?

Schizophrenia is diagnosed by the presence of symptoms. In order to be diagnosed with schizophrenia, an individual must display two or more symptoms (referred to as criterion A symptoms which include delusions, hallucinations, disorganized speech, grossly disorganized or catatonic behaviour or negative symptoms) for a significant portion of time over the course of one month.1 Only one symptom is required for a diagnosis of schizophrenia if an individual is experiencing bizarre delusions or he/she experiences hallucinations that involve a voice making a running commentary or voices conversing with each other.1 Diagnosis also requires that one or more major areas of functioning (e.g. work, interpersonal relations, or self-care) are markedly below the level attained prior to disease onset.1 Signs of the disturbance must be present for at least six months (including the one month of criterion A symptoms) and symptoms cannot be attributed to another psychiatric disorder, substance use or abuse or a general medical condition.1

What causes schizophrenia?

Evidence suggests that the etiology of schizophrenia involves genetic, early environmental and social factors. Multiple genes are thought to be associated with schizophrenia. It is thought that each gene has a small effect in increasing the risk of schizophrenia in the presence of certain environmental and social factors. Environmental factors that may increase the risk of schizophrenia include prenatal and perinatal events, such as maternal influenza, rubella, malnutrition, diabetes mellitus, smoking during pregnancy and

obstetric complications that involve hypoxia.⁵ Social factors associated with schizophrenia include poverty and lower social class.⁵

What is the epidemiology and disease course of schizophrenia?

The onset of schizophrenia tends to be gradual and subtle, taking place over approximately five years.⁵ Initially, negative and depressive symptoms are apparent and are then followed by cognitive and social impairment. Psychotic symptoms usually occur several years later.⁵ Symptoms of schizophrenia generally first develop between ages 15 and 25 years in men, and ages 25 and 35 years in women, but the incidence of the disease is about the same for both sexes.1 Symptoms can differ between men and women. Men are more likely to experience negative symptoms, while women are more likely to experience symptoms that affect mood.⁵ Individuals affected by schizophrenia usually undergo an acute phase of the illness, during which time positive symptoms, distress and disorganization increase, which often prompts an individual to seek treatment.2 This phase is generally followed by a stabilizing stage of the illness during which symptoms and disorganization usually decline with treatment.2

long-term prognosis schizophrenia varies greatly among individuals with the disease, ranging from reasonable recovery to total incapacity.1 After an initial episode, about 10 to 15% of individuals with schizophrenia will be free of further episodes, while another 10 to 15% will experience chronic severe psychosis.1 Most individuals with schizophrenia will, however, have periods of exacerbations and remission.1 More favourable long-term outcomes have been observed for females and those who are married, older at onset, and lack a family history of schizophrenia.1 Individuals with good premorbid social and academic functioning, fewer prior episodes, a phasic pattern of episodes and remissions, minimal comorbidity, and predominantly positive symptoms also tend to have more favourable outcomes.1

How is schizophrenia managed?

Schizophrenia is managed with antipsychotic medications to reduce or eliminate symptoms and improve functioning. Generally, in treating a first episode of schizophrenia, the choice of medication is guided by a number of factors specific to the patient.² Once remission is achieved, long-term maintenance treatment is needed in order to stabilize the patient and to prevent relapse of symptoms.² Antipsychotic medication is usually continued for a minimum of two years after recovery from symptoms, following a first episode of schizophrenia.²

First-generation antipsychotics (e.g., chlorpromazine, perphenazine, haloperidol) have been used in the management of schizophrenia, but have some limitations. Side effects can be problematic with these agents. Common side effects include anticholinergic side effects (e.g., dry mouth, sedation, blurred vision, constipation), hypotension, difficulties with sexual function and extrapyramidal side effects (i.e., various movement disorders), including tardive dyskinesias (i.e., repetitive, involuntary movements such as grimacing, tongue protrusion, lip smacking, pursing of the lips, and rapid eye blinking). The risks of extrapyramidal side effects and tardive dyskinesia are considerably lower with second-generation antipsychotics.⁶ Firstgeneration antipsychotics also have limitations in that they improve the positive symptoms of schizophrenia, but do not have a significant impact on negative symptoms.⁶ Second-generation antipsychotics, on the other hand, can have a favourable impact on both positive and negative symptoms, as well as cognitive impairment.² As such, second-generation antipsychotics replacing first-generation antipsychotics as initial therapies for schizophrenia.²

Second-generation (also referred to as atypical) antipsychotics are recommended as first-line treatment for the first acute episode of schizophrenia.² They are also indicated for individuals who have had multiple episodes of schizophrenia.² Clozapine, quetiapine, olanzapine, risperidone and paliperidone are the

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second-generation antipsychotics currently available in Canada. Common adverse effects with these agents include weight gain, metabolic disturbances (in blood glucose and lipids) and sedation (mainly with clozapine).¹

What is the impact of nonadherence in schizophrenia?

Failure to adhere to medication regimens is one factor that contributes to the ongoing burden associated schizophrenia, as the patient's symptoms will not be optimally controlled and remission and recovery cannot be achieved. While adhering to a treatment regimen can be difficult in any medical condition, schizophrenia can pose a unique challenge to adherence given that the disease affects cognitive abilities and judgement. Less than 25% of individuals with schizophrenia are fully adherent with their medications and, on average, individuals with schizophrenia take their antipsychotics as prescribed about 60% of the time.⁷ Adherence has also been observed to decrease over time.⁷ Nonadherence may involve refusing treatment altogether, medication, discontinuing medications irregularly or varying medication regimens from day to day.8 It is associated with an increased risk of hospitalization, use of emergency services, suicide, arrests, violence, victimization, substance abuse, lower levels of life satisfaction and impaired mental functioning.9

What causes nonadherence in schizophrenia?

Several demographic characteristics influence adherence in schizophrenia, including age, sex and socioeconomic issues. Specifically, younger individuals with schizophrenia, particularly males, poorly adhere to medication regimens. ¹⁰ The elderly with schizophrenia also tend to have poor adherence rates. When individuals with schizophrenia do not have stable living environments (e.g., if they are homeless) adherence can be compromised significantly. An individual's financial situation may present a barrier

to treatment and, relatively speaking, second-generation antipsychotics can be expensive. ¹⁰ This may lead to underuse or rationing of medication or simply not taking medication.

Individuals who abuse drugs or alcohol may be at particularly high risk for nonadherence,10 and tend to be readmitted more quickly following discharge from a psychiatric treatment facility.7 Furthermore, attitudes toward drug therapy are an important factor in predicting adherence. 10 Individuals with their first episode of schizophrenia are two to three times more likely to discontinue antipsychotic treatment within the first two years of treatment if they do not believe that medication is needed or do not perceive that medication has much benefit.11 Unfortunately, individuals with schizophrenia often lack insight and make poorly informed decisions with regards to treatment adherence.10

Symptoms can potentially impact medication adherence in schizophrenia. Individuals suffering from delusions and hallucinations may fear taking medication. Individuals with schizophrenia who have cognitive deficits often experience difficulties remembering to do things in the future. This can be a significant barrier to taking medications as prescribed.

Adverse effects of antipsychotic medications can also have a significant impact on adherence in schizophrenia. The rapid onset of adverse effects and their persistence throughout therapy discourages adherence and may lead to discontinuation of treatment. ¹⁰ Examples of particularly problematic adverse effects include extrapyramidal side effects, weight gain, and cognitive effects such as sedation. ^{12,13}

The delayed onset of action of antipsychotic medications can compromise adherence in schizophrenia. ¹⁰ If individuals with the illness and their caregivers are unaware that not all symptoms will be immediately relieved with treatment, they may assume that treatment failed and discontinue treatment. ¹⁰ Adherence may also be reduced significantly by multiple medications and multiple

administration times.¹⁴ Thus, when possible, once-daily administration of medications is recommended.¹⁴

What can be done to improve adherence in schizophrenia?

A number of strategies can be employed to improve adherence in schizophrenia, including identifying patient-specific barriers to adherence, working with patients and family members to develop strategies to promote adherence, patient education about the disease (e.g., the cause of schizophrenia, as this may help to reduce stigmatized perceptions of the disease) and the effects of treatment (e.g., time to onset of symptomatic relief, adverse effects and how to minimize them, the importance of continuing treatment after symptoms resolve). Medication management strategies can help promote adherence and may involve relating medication taking to another activity that is part of the patient's daily routine, using visible reminders (e.g., placing medication in a visually prominent place), self-monitoring calendars, reminder phone calls and adherence packaging, or having someone else administer the medication. 15,16 An individualized plan that meets the patient's needs is important to a successful intervention.¹⁵

What is the role of the pharmacy technician?

Providing pharmacy services to individuals with schizophrenia requires compassion and understanding. Symptoms of the disease (e.g., flattened affect, reduced thought and speech productivity, disorganized speech, thoughts and behaviour, and poor attention) may make it challenging for individuals with schizophrenia and pharmacy staff to communicate effectively. Moreover, adverse effects of medications, such as sedation and cognitive impairment, may create difficulties in communication. Furthermore, effective communication can be hampered if pharmacy staff members lack understanding schizophrenia and have stigmatized perceptions and misconceptions about the

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disease. These factors can potentially reduce the pharmacy staff's desire to spend the necessary time with individuals with schizophrenia to ensure that they have the knowledge they need to cope with the disease and not make ill-informed choices with respect to treatment adherence. Poor communication will place patients at risk of nonadherence and its sequelae (e.g., relapse, hospitalization). As such, pharmacy technicians should be sure to exercise patience and empathy when dealing with patients with schizophrenia. Pharmacy technicians should also be cognizant of the fact that symptoms and the degree of recovery vary dramatically among patients with schizophrenia. It is important not to assume that patients with schizophrenia will have with difficulties cognition communication, or pharmacy technicians may place themselves at risk of appearing condescending from the patient's perspective. By making a point of interacting and becoming familiar with individuals with schizophrenia who receive services through their pharmacy, pharmacy technicians can gain better insight into each patient's level of functioning. This may help to guide future communication.

Another important role that pharmacy technicians can play in providing care for individuals with schizophrenia is to help identify those at risk of nonadherence and alert the pharmacist when needed. Adherence may be assessed through reviewing the medication profile when refilling prescriptions to determine if they are late or early. As well, pharmacy technicians can identify patients who have complicated medication regimens and bring this to the attention of the pharmacist, who may be able to help simplify the regimen. In addition, when individuals with schizophrenia present to the pharmacy with new or refill prescriptions, pharmacy technicians can simply inquire if they are having any problems with taking their medications, issues with side effects, or have any questions for the pharmacist. In this way, pharmacy technicians can help to ensure that individuals with schizophrenia receive the attention they need to help manage the disease.

It should also be pointed out that individuals with schizophrenia may lack the capacity to manage their own care and may receive help and support from family or professional caregivers. Pharmacy technicians can help to provide support to caregivers by ensuring they have access to the pharmacist to answer any questions about the disease and its treatment and to address any drug-related problems that could, for example, relate to adherence or adverse effects. Pharmacy technicians can also help by referring family and caregivers, as well as the individual with the disease, to support groups within the community and to national resources, such as the Schizophrenia Society of Canada (www. schizophrenia.ca).

Summary

In summary, schizophrenia is a psychiatric illness that carries with it a substantial burden, affecting young adults in what should be their most productive years. It is often difficult to treat, partly because medication adherence may be particularly problematic in this population. Adverse effects of medications often contribute to nonadherence, as do a number of other medication-, disease-, and environment-related factors. Pharmacy technicians can play an important role in the care of individuals with schizophrenia by treating them with dignity and respect, and by ensuring that they receive the attention required to help them manage their disease.

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> QUESTIONS

Please select the best answer for each question or answer online at www.pharmacygateway.ca for instant results.

1. Which of the following is correct about the symptoms of schizophrenia?

- a. First-generation antipsychotics are effective at eliminating negative symptoms of schizophrenia
- b. In the initial onset of the disease, positive symptoms generally precede negative symptoms
- c. The onset of symptoms is usually sudden, over the course of a few weeks
- d. In women, symptoms generally first develop between the ages of 25 and 35

2. Which of the following is a first-generation antipsychotic?

- a. quetiapine
- b. clozapine
- c. perphenazine
- d. olanzapine

3. Examples of nonadherence include which of the following?

- a. Refusing treatment altogether
- b. Taking medications irregularly
- c. Varying medication regimens from day to day
- d. All of the above

4. Which of the following is a common adverse effect associated with second-generation antipsychotics?

- a. Weight gain
- b. Tongue protrusion
- c. Eye darting
- d. Lip smacking

5. Which of the following is true with respect to adherence in schizophrenia?

- a. Most individuals with schizophrenia are fully adherent to their medication regimens
- Adverse effects of antipsychotic medications are generally minimal and have little impact on adherence in schizophrenia
- The longer that an individual with schizophrenia is on an antipsychotic, the more likely he or she is to adhere to treatment
- d. Nonadherence in schizophrenia has been associated with arrests, violence, and victimization

6. Schizophrenia is thought to be caused by which of the following?

- a. Genetic factors
- b. Early environmental factors
- c. Social factors
- d. All of the above

7. Which of the following statements about males with schizophrenia is correct?

- a. Males with schizophrenia are less likely to experience negative symptoms than females with schizophrenia
- b. Males tend to be older than females at the onset of symptoms in schizophrenia
- Young males with schizophrenia are at risk of poor adherence to medication regimens
- d. The incidence of schizophrenia in males is greater than in females

8. Which of the following is a positive symptom of schizophrenia?

- a. Flattened affect
- b. Inability to experience pleasure
- c. Delusions
- d. Disorganized speech

9. Which of the following statements about second-generation antipsychotics is correct?

- Haloperidol is an example of a secondgeneration antipsychotic that is available in Canada
- Second-generation antipsychotics are recommended for treating initial episodes of schizophrenia
- Second-generation antipsychotics can help improve both positive and negative symptoms of schizophrenia.
- d. B and C are both correct

10. Which of the following characteristics or factors are associated with adherence in schizophrenia?

- a. Age
- b. Sex
- c. Drug and alcohol abuse
- d. All of the above

11. Which of the following statements about the long-term prognosis of schizophrenia is correct?

- Following an initial episode of schizophrenia, about 50% of individuals will experience chronic severe psychosis
- Following an initial episode of schizophrenia, about 50% of individuals will never experience another episode of the disease.

- c. The long-term prognosis of all individuals with schizophrenia is poor as recovery is extremely unlikely
- d. Following an initial episode of schizophrenia, most individuals will have periods of exacerbations (with clinical deterioration) and remission.

12. More favourable long-term outcomes in schizophrenia have been observed in which of the following groups?

- a. Males
- b. Those who are single
- c. Those with a family history of schizophrenia
- d. Those with predominantly positive symptoms

13. Which of the following medicationrelated factors are associated with adherence in schizophrenia?

- a. Cost
- b. Adverse effects
- c. Complexity of the regimen
- d. All of the above

14. Which of the following adverse effects commonly leads to medication discontinuation in schizophrenia?

- a. Constipation
- b. Dry mouth
- c. Weight gain
- d. Blurred vision

15. Which of the following statements about treatment of schizophrenia is correct?

- a. Second-generation antipsychotics are not recommended for treating individuals who have had multiple episodes of schizophrenia
- Second-generation antipsychotics are recommended for individuals experiencing their first acute episode of schizophrenia
- c. Antipsychotic medication is usually continued for a minimum of six months after recovery from symptoms following a first episode of schizophrenia
- d. First-generation antipsychotics are replacing second-generation antipsychotics as initial therapies for schizophrenia

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