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LEARNING OBJECTIVES

Upon successful completion of this lesson, you should be able to:

1. describe the difference between atypical and typical antipsychotics.
2. discuss the most common indications for the use of antipsychotics in the elderly and describe inappropriate uses in this population.
3. discuss side effect profiles of the antipsychotics, and how they are related to receptor affinities.
4. describe the role of the pharmacist with respect to managing antipsychotic therapy in the elderly.

To successfully complete the post-test for this lesson you may need a recent edition of the Compendium of Pharmaceuticals and Specialties for additional information.

INSTRUCTIONS

1. After carefully reading this lesson, study each question in the post-test and select the one option you believe is the best answer. Although more than one option may be considered acceptable, only one option is the *best* answer.
2. To pass this lesson, a grade of at least 70% (14 out of 20) is required. If you pass, your CEU(s) will be recorded with the relevant provincial authority(ies). (Note: some provinces require individual pharmacists to notify them.)

ANSWERING OPTIONS

- A. For immediate results, answer online at www.pharmacygateway.ca.
- B. Mail or fax the printed answer card to (416) 764-3937. Your reply card will be marked and you will be advised of your results within six to eight weeks in a letter from *Pharmacy Practice*.

Antipsychotic use in the elderly

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Antipsychotic use in the elderly has increased over the past 15 years. This may be due, in part, to the introduction of atypical antipsychotics that tend to be less likely to cause extrapyramidal symptoms (EPS) at lower doses than older typical antipsychotics. A population-based study in Ontario that looked at Ontario Drug Benefit users (primarily ≥ 65 years of age) showed an increase of 229% in total annual antipsychotic prescriptions (studied 1993 to 2002). By 2002, 82.5% of prescriptions were for atypicals.¹

Antipsychotics are widely used in long-term care facilities (LTCFs) and are often used inappropriately. For example, a comparative descriptive study with data from two Canadian LTCFs found that only 8.1% of prescriptions had a documented behavioural indication and 13.5% of prescriptions were improperly written for "as needed" use.²

Pharmacists can play an important role in ensuring safe and appropriate use of antipsychotics in the elderly population.

This lesson will review antipsychotics

in the elderly and key points which pharmacists should be aware of when monitoring patients and counselling them and/or their caregivers. Much of the literature on the use of antipsychotics in the elderly is focused on their use for behavioural disturbances in dementia. Information in this lesson is based primarily on this indication.

Typical versus atypical antipsychotics

Antipsychotics are dopamine (D) receptor antagonists, and most have affinity for

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table 1

Categories of antipsychotics*	
Antipsychotic type	Examples
atypical	clozapine, olanzapine, risperidone, quetiapine, ziprasidone
typical low potency	chlorpromazine, thioridazine
typical mid potency	perphenazine, loxapine
typical high potency	pimozide, trifluoperazine, haloperidol, fluphenazine

*Adapted from reference 1

both D₁ and D₂ receptors as well as some affinity for other types of receptors.³ Adverse profiles vary depending on the degree of affinity of an antipsychotic to a certain receptor (see Adverse Effects Profiles).³ It is thought that typical antipsychotics (e.g., older agents such as haloperidol and loxapine) bind more tightly and for a longer duration than dopamine to D₂ receptors, while atypical agents (e.g., risperidone, quetiapine, olanzapine, ziprasidone, clozapine) bind more loosely, and for a shorter period of time, than dopamine to D₂ receptors. This theoretically explains the difference in adverse effect profiles between typical and atypical antipsychotics.⁴

Table 1 outlines examples of typical and atypical antipsychotics.

Appropriate use of antipsychotics in the elderly

DELIRIUM

Delirium, presenting as a disturbance in consciousness accompanied by a change in cognition that cannot be better accounted for by a pre-existing or evolving dementia, is a medical emergency. Morbidity and mortality can be quite high in the elderly population.⁵ Antipsychotics can be used short-term to treat behavioural symptoms of delirium, while underlying problems are being addressed.

BEHAVIOURAL AND PSYCHOLOGICAL SYMPTOMS OF DEMENTIA

One of the most common uses of antipsychotic medications in the elderly is the management of difficult behaviours, including psychosis, agitation and aggression, in patients with Alzheimer's disease or other types of dementias. Prior to initiating therapy with an antipsychotic for behavioural and psychological symptoms of dementia (BPSD) it is important to determine whether or not there are other treatable causes of the behaviour and to try nonpharmacological interventions first (e.g., reducing overstimulation, using written cues, environmental changes, activity changes, behaviour therapy).⁶

Both typical and atypical antipsychotics have been shown to be effective for the management of psychotic symptoms in patients with dementia.⁶ Patients with dementia may present with delusions (e.g., paranoid thoughts), hallucinations (visual or auditory) and misperceptions (e.g., cannot recognize themselves), among other behavioural disturbances. These symptoms are psychotic in nature and are more likely than other symptoms, such as mood changes and sleep disturbances, to respond to antipsychotics.⁷ Although there is limited evidence to support the effectiveness of antipsychotics for BPSD they continue to be widely used.⁸ Other medications, such as benzodiazepines, anticonvulsants and antidepressants are often used to manage behavioural disturbances in patients with dementia, but antipsychotics have been the most studied for this indication.⁹

In a double-blind placebo-controlled trial of 421 outpatients with Alzheimer's disease, conducted as part of the Clinical Antipsychotic Trials of Intervention Effectiveness – Alzheimer's Disease (CATIE-AD), there was no significant difference in reduction in symptoms of agitation or aggression between placebo, olanzapine, quetiapine and risperidone, and adverse effects of these atypical antipsychotics limited their use in most patients. Although up to 32% of patients did show some

benefit during the study (as measured by the Clinical Global Impression of Change), the authors concluded there is no significant clinical benefit of treatment with atypical antipsychotics for AD patients.⁸ Despite the results of CATIE-AD, an expert consensus group on the use of antipsychotics in the elderly agreed that antipsychotics should be used first-line in patients with agitated dementia with delusions.¹⁰ With all patients, the risks versus benefits must be considered and medication dosages and monitoring should be individualized.

Antipsychotics should be used carefully for BPSD and the treatment strategy should be re-evaluated regularly (at least every 12 weeks).⁶ An expert working group of the American Psychiatric Association recommends attempting to discontinue the antipsychotic every several months, taking into consideration the types of behaviours and the risks associated with them.⁶

Although risperidone is the only antipsychotic indicated for the treatment of behavioural disorders associated with dementia, most other atypical antipsychotics are also used for these symptoms.

OTHER INDICATIONS

Antipsychotics are indicated for schizophrenia; however, the incidence of this condition is low in the elderly population. Some antipsychotics are indicated for bipolar disease.¹⁰ Antipsychotics may be used with antidepressants in patients with psychotic major depression, but these are not recommended in elderly patients with non-psychotic depression or depression with severe anxiety.¹⁰

Inappropriate uses of antipsychotics

When antipsychotics are prescribed for BPSD, clinicians need to consider the type of behaviour and whether it is likely to respond to medication therapy. For example, behaviours such as wandering, pacing, disruptive vocalizations and inappropriate voiding do not typically respond

to any antipsychotic.¹¹

Antipsychotics are often used in patients with Parkinson's disease (PD) for the management of psychotic symptoms, such as hallucinations.¹² In this group it is particularly important to avoid antipsychotics or dosages of antipsychotics that can cause EPS. Clozapine has been shown to be beneficial in several clinical trials, without worsening PD.¹²⁻¹⁴ Olanzapine was found to have limited efficacy in patients with PD for the management of psychotic symptoms while potentially worsening their PD symptoms.^{15,16} Although quetiapine did not appear to worsen PD symptoms in studies, it also did not demonstrate significant improvement in psychotic symptoms.¹⁷⁻¹⁹

Patients with dementia with Lewy bodies (DLB), which has parkinsonian features in addition to those of dementia and accounts for up to 20% of dementia cases,²⁰ are more sensitive to antipsychotics. In addition to progressive cognitive decline, features of DLB include fluctuating cognition, recurrent visual and other types of hallucinations, spontaneous motor features of parkinsonism, falls, syncope and systematized delusions.²¹ The typical antipsychotics should not be used in this population as they have been associated with severe and sometimes fatal sensitivity in at least 50% of patients with DLB.²² Symptoms of this sensitivity include sudden sedation, increased confusion, rigidity, decreased mobility, and autonomic disturbances like neuroleptic malignant syndrome.²² This sensitivity can also occur with atypical antipsychotics.²²

In the elderly population, anticholinergic medications can worsen cognitive impairment in the presence of dementia. The low-potency typical antipsychotics, such as chlorpromazine should be avoided in the elderly because they tend to be more likely to cause anticholinergic effects.¹¹

Dosing considerations in the elderly

With aging, a number of physiologic changes occur that can impact on medica-

tion disposition. Some of these changes can specifically affect antipsychotics. An increase in fat-to-muscle ratio can lead to accumulation of lipid-soluble medications such as haloperidol. A reduction in the synthesis of drug-binding proteins (e.g., albumin) in the elderly person can lead to a larger unbound drug concentration for highly protein-bound drugs (e.g., haloperidol, risperidone, chlorpromazine and thioridazine).²³ With aging, both hepatic and renal metabolism can be reduced and this may result in a longer duration of action of antipsychotics. Also, elderly people are more likely to experience central nervous system adverse effects of antipsychotics as a result of a greater ability of medication to cross the blood-brain barrier.²³ Table 2 outlines dosing recommendations for selected antipsychotics used to treat BPSD in the elderly.

Some dosing recommendations for the use of antipsychotics in dementia from a working group of the American Psychiatric Association include:⁶

- Start at a low dose (e.g., risperidone 0.25 mg per day) and use the lowest effective dose.
- Avoid rapid dose titration to minimize adverse effects.
- Reduce the dose if adverse effects are experienced by the patient.
- Use regularly scheduled doses rather

than as needed.

- Use other treatments (e.g., non-pharmacological strategies) if symptoms are irregular.

Most antipsychotics can be given once daily. However, each patient's symptoms should be assessed individually to determine the most optimal dosing.

Adverse effect profiles

Adverse effects of antipsychotics largely depend on receptor affinities, in combination with patient factors, such as age. Depending on the drug, typical antipsychotics generally have greater affinities for D₂ receptors, and less for muscarinic, adrenergic, serotonergic and histaminic receptors. On the other hand, atypicals generally have weaker affinities for D₂ but more so for muscarinic, adrenergic, serotonergic and histaminic receptors.²³ Table 3 compares antipsychotics with respect to their relative receptor affinities.

Identification of the type of receptor activity of an antipsychotic can help clinicians predict which adverse effects are more likely to occur. A high amount of dopaminergic activity (especially antagonism at D₂) can cause extrapyramidal effects. Muscarinic receptors are associated with anticholinergic effects. Alpha-1 adrenergic receptor activity can include orthostatic hypotension, arrhythmia and

table 2

Dosing of some antipsychotics in the elderly^{9,10,25}

Antipsychotic	Available dosage forms	Behavioural disturbances with dementia*
haloperidol	tablet, injection, depot injection	1.5-2 mg
perphenazine	tablet	2-24 mg
risperidone	tablet, liquid, oral disintegrating tablet, depot injection	0.25-2 mg
quetiapine	tablet, long-acting tablet	25-150 mg
clozapine	tablet	6.25-50 mg
olanzapine	tablet, rapid-dissolving wafer, injection	5-7.5 mg
ziprasidone	capsule	N/A**

*Note: dose is total daily dose.

** This medication has just been approved in Canada so there is limited experience in dementia and like most other antipsychotics, it is not officially approved for behavioural disturbances.

table 3

Antipsychotic receptor affinities^{3,25,48-52}

Agent	D ₁	D ₂	M ₁	α ₁	5HT ₂	H ₁
chlorpromazine	weak	high	moderate	high	moderate	moderate
clozapine	moderate	high	very high	very high	very high	very high
haloperidol	none	very high	none	weak	weak	none
olanzapine	weak	moderate	moderate	weak	very high	high
quetiapine	weak	moderate	weak	moderate	moderate	moderate
risperidone	none	high	none	high	very high	high
ziprasidone	n/a	high	very low	low	high	low

D₁ = dopamine type 1 receptor; D₂ = dopamine type 2 receptor; M₁ = muscarinic receptor; α₁ = alpha-adrenergic receptor; 5HT₂ = serotonin receptor; H₁ = histamine 1 receptor

tremor. Weight gain is an example of a serotonergic effect of an antipsychotic. Histaminic effects include sedation, hypotension and weight gain.²³

Clozapine can cause agranulocytosis, and may lower the seizure threshold with dosage increases greater than 100 mg per day, or at high doses (greater than 600 mg per day).²³ Clozapine is less likely to be used in the elderly (and other patients) due to its high risk-benefit ratio.

EXTRAPYRAMIDAL SYMPTOMS

All antipsychotics have the potential to cause EPS, but the degree to which this occurs depends on the specific agent, receptor affinities and dose. Some studies have shown there is a similar incidence of EPS in patients taking atypical antipsychotics and those prescribed low to moderate doses of high-potency agents (e.g., haloperidol) or low-potency agents (e.g., chlorpromazine).^{24,25} The incidence of EPS increases with higher doses of atypical antipsychotics.^{24,25} EPS may include parkinsonism, tardive dyskinesia, akathisia and acute dystonia. Table 4 outlines the key features of each EPS.

ANTICHOLINERGIC EFFECTS

Most antipsychotics (except risperidone and haloperidol) have affinity for muscarinic receptors, which are a type of cholinergic receptor. Blockade of these receptors

can lead to classic anticholinergic side effects such as tachycardia, dry mouth, blurred vision, constipation, urinary retention and confusion. Of the atypical antipsychotics, clozapine and olanzapine have the highest likelihood of anticholinergic effects. Clozapine, however, may have paradoxical effects such as urinary frequency at higher doses and hypersalivation even at lower doses.²⁶ Chlorpromazine and other low-potency typical antipsychotics also have affinity for muscarinic receptors. It is important to limit the use of any medication with anticholinergic effects in the elderly, particularly in those with dementia, especially since this increases the risk of cognitive decline.^{27,28}

WEIGHT GAIN

Many antipsychotics have been associated with weight gain. The literature supports the greatest risk of weight gain with clozapine and olanzapine, less with quetiapine and low-potency typical antipsychotics and still less with risperidone and high-potency typical antipsychotics.²⁵ Weight gain may be associated with antipsychotic affinity for the H₁ receptor and tends to occur in the first four to 12 weeks of treatment, particularly with the atypical antipsychotics.^{27,29} A patient's weight status should be considered and monitored when determining the appropriateness of an antipsychotic agent.

There is limited evidence to support the

use of adjunctive therapies (e.g. amantadine and nizatidine) to manage weight gain associated with antipsychotics.³⁰ Further study, particularly in an older population at higher risk of type 2 diabetes, is required to determine the most effective and safest management of weight gain due to antipsychotics in older adults.

DIABETES

Epidemiologic data have linked the incidence or exacerbation of diabetes to the use of certain atypical antipsychotics.³¹ In most cases, hyperglycemia manifested about six weeks after beginning antipsychotic therapy, and was reversible when the drug was removed.³² Most cases of diabetes have been reported with clozapine and olanzapine.³²

As a result of the potential impact of atypical antipsychotics on weight, blood glucose and lipids, the American Diabetes Association has published a consensus on recommended monitoring for all patients on atypical antipsychotics. Patients should have a baseline assessment of body mass index (BMI), waist circumference, blood pressure, fasting plasma glucose, fasting lipid profile and family and personal history. Weight, fasting plasma glucose, fasting lipid profile and blood pressure should be reassessed at regular intervals throughout the course of therapy.³³

table 4

EPS descriptions*

EPS Type	Description
parkinsonism	bradykinesia, rigidity, tremor, postural instability
tardive dyskinesia	repetitive involuntary movements (e.g. lip smacking, grimacing, limb movements)
akathisia	restlessness and anxious agitation
acute dystonia	acute muscle hypertonicity or spasm

*Adapted from reference 25
EPS = extrapyramidal symptoms

DYSLIPIDEMIA

Some studies have shown that certain antipsychotics cause hypertriglyceridemia and result in reduced HDL cholesterol levels.³⁴⁻³⁶ Clozapine and olanzapine have been most commonly associated with these effects which tend to correlate with increased weight or BMI.³⁴⁻³⁶ For patients who are overweight, it is especially important to consider the choice of antipsychotic to minimize an increase in weight and potential subsequent dyslipidemic effects.

ORTHOSTATIC HYPOTENSION

Orthostatic hypotension can be an adverse effect with serious consequences in an elderly person, potentially leading to falls and fractures. Orthostatic hypotension is more commonly seen with clozapine and quetiapine, but less so with risperidone and olanzapine.³⁷ Many of the typical antipsychotics (e.g., chlorpromazine) are also associated with orthostatic hypotension.³⁷ Patients who are concurrently treated with antihypertensive medications or who have conditions that can increase their risk of falls (e.g., PD) should be monitored carefully. They should also be counselled on strategies to minimize the impact of orthostatic hypotension,³⁷ including getting up slowly from a sitting or lying position, drinking an adequate amount of fluids, limiting their alcohol consumption, exercising regularly, avoiding long periods of standing, and sleeping with the head of the bed raised.³⁸

SEDATION

Sedation, a common adverse effect of antipsychotics seen more frequently with agents with a high affinity for H₁ receptors, can be a concern with clozapine, olanzapine and quetiapine, but less so with risperidone.³⁷ Often, the sedating effects of these medications can account for the initial improvements in behaviour.³⁷ If highly sedating antipsychotics are used, patients should be advised to take the medication at supper or bedtime unless daytime BPSD symptoms are severe. In some elderly patients with concurrent insomnia, a sedating antipsychotic would be a reasonable choice.³⁷

STROKE

Warnings from Health Canada about the risk of cerebrovascular accidents with use of risperidone and olanzapine have prompted further investigation by researchers.^{39,40} A retrospective, population-based cohort study conducted in Ontario from 1997–2002 compared the risk of stroke in 11,400 patients ≥ 65 years of age, among those prescribed typical antipsychotics versus those taking olanzapine or risperidone. The authors found that the risk of stroke among users of typical versus atypical antipsychotics was not statistically significant. However, the study was limited by the inability to control for some stroke risk factors and to account for transient ischemic attacks and mild strokes for which patients were not hospitalized.⁴¹

Other data support the increased risk of stroke in patients taking atypical antipsychotics compared to placebo. A meta-analysis of four clinical trials that evaluated cardiovascular risks with risperidone use in elderly patients with dementia found that there was approximately a three times higher risk of stroke in the treatment groups than with placebo.⁴²

Older patients are already at higher risk of stroke, so it is imperative that antipsychotic use is approached cautiously and that stroke prevention strategies (e.g. lifestyle changes, controlling hypertension) are implemented.⁴³

INCREASED MORTALITY RISK

A 2005 Health Canada Advisory warned that atypical antipsychotics were associated with a 60% increased risk of all-cause mortality as seen in a pooled analysis of thirteen randomized controlled trials in elderly people with dementia taking risperidone, olanzapine, and quetiapine or placebo.⁴⁴ The most common causes of death were heart failure, sudden cardiac death or infections (e.g., pneumonia). Health Canada recommended labeling changes for atypical antipsychotics to reflect warning of this risk.⁴⁴

A retrospective cohort study in the U.S.

of 22,890 patients ≥ 65 years of age using antipsychotic medications found that there was a similar risk of death in this population with the use of typical and atypical antipsychotics. The authors found that risk of death was highest shortly after initiation of therapy and in patients on higher doses of typical antipsychotics. The authors did not know the causes of death, but they did suggest that anticholinergic effects (leading to changes in blood pressure and heart rate), prolongation of the QT interval (leading to conduction delays) and EPS (leading to swallowing difficulties) be further studied as potential causes.⁴⁵

In a cohort study that used healthcare utilization data for 37,241 British Columbia residents ≥ 65 years of age without cancer who took an antipsychotic medication between 1996 and 2004, investigators compared 180-day all-cause mortality between users of atypical and typical antipsychotics. In this study, patients taking typical antipsychotics had a 32% higher dose-dependent risk of death compared to those on an atypical antipsychotic.⁴⁶

Drug interactions

It is important to be aware of some of the more common drug interactions with antipsychotic agents.

Antipsychotics that cause sedation may interact with other central nervous system depressant medications (such as certain analgesics, antihistamines and anxiolytics). Co-administration of anticonvulsants with antipsychotics may reduce plasma levels of the antipsychotic, likely as a result of hepatic enzyme induction by the anticonvulsant. This could result in higher levels of antipsychotic if the anticonvulsant is discontinued. Antipsychotics can interact with anticholinergic medications or those with anticholinergic side effects (e.g. diphenhydramine, amitriptyline) resulting in a greater likelihood of side effects.^{39,47}

The pharmacist's role

When using antipsychotics in the elderly, pharmacists should note that lower dosages

may be required and that drug interactions and adverse effects may be more likely to occur in this population compared to younger adults.⁹ Pharmacists should ensure that a patient's risk factors are assessed since caution is advised in patients with vascular or mixed dementia, history of stroke or TIA, hypertension, diabetes, atrial fibrillation and smoking.⁴⁴

An important principle of pharmaceutical care involves consideration of treatment outcomes. When treating an elderly patient with an antipsychotic medication, the pharmacist should be aware of expected outcomes and the time frame during which re-evaluation of therapy and/or dose should occur. When evaluating outcomes, it is important to have documentation by a caregiver of specific behaviours and their occurrence. It can take anywhere from several days up to two to four weeks to see the effect of the antipsychotic, so an adequate trial should be in the range of two to four weeks.⁹ If the treatment is not effective, it should be tapered, eventually discontinued and an alternate treatment may be tried. If it is

effective, it should be reviewed on a regular basis, approximately every twelve weeks. For BPSD it is advised to consider decreasing or discontinuing the antipsychotic every three months if behaviours are stable.⁴⁸ Ballard et al found that 67% of patients with dementia who had stable behaviours and had received more than three months of therapy with an antipsychotic experienced no deterioration of symptoms when the medication was discontinued.⁴⁹

Pharmacists should note that specific monitoring parameters include changes in symptom severity and frequency, overall functioning, quality of life, and impressions of caregivers and the patient, if possible.⁴⁷ Also, monitoring for adverse effects should include evaluation of any signs of EPS, and changes in blood pressure, weight, blood glucose and lipid levels.⁴⁷

In the selection of an antipsychotic for any indication for an elderly person, pharmacists can provide important information about the different adverse effect profiles of antipsychotics to physicians and other healthcare providers. Features of individual

agents (e.g., receptor affinities, adverse effect profiles, efficacy) should be considered when choosing specific medication. The lowest possible dose of an effective agent should be used for the shortest possible time in patients with dementia.⁴⁷

Patients and/or caregivers should be educated about what to expect with antipsychotic therapy, the potential risks, and how treatment will be monitored. Pharmacists should ensure the patient and/or family and caregivers are aware of the risks and benefits of treatment with antipsychotics. Pharmacists can play an important role in providing this information and engaging in dialogue with patients and/or caregivers.

Summary

In the elderly population, antipsychotics are most commonly used to treat BPSD. Pharmacists play an important role in educating patients, caregivers and family about the risks and benefits of using these medications, as well as ensuring that appropriate monitoring is done to ensure efficacy and safety. **CP**

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Questions

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1 K.M. is an 86-year-old female resident of an LTCF. She has Alzheimer's disease and was admitted to the facility when her husband began to have a difficult time at home with her. She began to wander and was at risk of becoming lost after leaving the home. At the facility, her wandering became a problem for the staff and other residents. Her nurse has asked you which antipsychotic medication would be best for her. Which of the following is correct?

- She should be given an atypical antipsychotic as there is more evidence of their effectiveness in behaviour disturbances such as wandering, compared to typical antipsychotics.
- K.M.'s physician should prescribe a low dose of risperidone because it is available in liquid form and the dose can slowly be titrated.
- Olanzapine has been shown to be more effective than risperidone for wandering, so this is the best option in K.M.'s case.
- Unless K.M. has other behavioural disturbances such as aggressive behaviour or is dangerous to herself or others, no antipsychotic is indicated for treatment of her wandering.

2 Which of the following antipsychotics is the least likely to cause orthostatic hypotension due to receptor binding activity?

- haloperidol
- risperidone
- quetiapine
- chlorpromazine
- clozapine

3 P.D. is a 75-year-old male with depression who was prescribed risperidone liquid a few months ago as an adjunct to sertraline. Recently, his dose of risperidone was increased to 2 mg BID. His wife has noted some unusual new symptoms, including strange facial expressions and unexpected movements of his arms. Which of the following is the most likely explanation?

- P.D. has developed Parkinson's disease due to risperidone.
- P.D. has developed tardive dyskinesia due to risperidone.
- P.D. has developed akathisia due to risperidone.
- P.D. has had an allergic reaction to risperidone.
- P.D. does not like the taste of the risperidone liquid.

4 J.N. is a 78-year-old female living in a retirement home. She has Parkinson's disease and is being treated with levodopa/carbidopa. J.N. has had a history of falls and has somewhat limited mobility. She is currently taking ramipril 5 mg daily, levodopa/carbidopa 100/25 2 tablets TID, and was recently prescribed quetiapine 25 mg daily for hallucinations. Which of the following is correct about her medication therapy?

- Quetiapine has been shown to worsen symptoms in Parkinson's disease.
- J.N. may be at risk of orthostatic hypotension so should be advised how to minimize the risk of falls.
- Quetiapine has been shown to be more effective than clozapine in treating Parkinson's disease-related psychotic symptoms.
- J.N. should be prescribed an antipsychotic with higher anticholinergic effects to help treat her Parkinson's disease symptoms.
- None of the above.

5 Which of the following is true regarding diabetes and antipsychotics?

- All patients on atypical antipsychotics should have a baseline fasting plasma glucose level.
- The most commonly implicated agents associated with diabetes are clozapine and quetiapine.
- New onset diabetes generally does not occur until about three months after antipsychotic therapy has been initiated.
- Hyperglycemia associated with antipsychotics is irreversible.
- All of the above.

6 Y.R. is a 70-year-old female with dementia taking olanzapine. Y.R. has always been overweight. Aside from therapeutic outcomes of her treatment, what else should be part of the monitoring regimen for Y.R.'s treatment?

- monitoring for agranulocytosis
- lipid profile because of her current weight and health risks, in addition to the added risk of dyslipidemia with olanzapine
- agitation because this is a potential adverse effect of olanzapine
- blood glucose monitoring due to the risk of diabetes with olanzapine
- both b) and d)

7 Which of the following is true with respect to antipsychotic use and patients with dementia with Lewy bodies (DLB)?

- All antipsychotics can cause serious side effects in people with DLB.
- Sensitivity to antipsychotics occurs in about 10% of patients with DLB.
- Sensitivity to antipsychotics in patients with DLB can lead to autonomic symptoms like neuroleptic malignant syndrome.
- a) and c)
- All of the above.

8 V.P. is an 82-year-old female with dementia who is taking quetiapine 25 mg TID for excessive agitation. V.P. continues to be quite agitated throughout the day. She is also extremely fatigued, which makes it difficult for her to perform activities of daily living. Which of the following recommendations would best minimize these problems?

- Switch to risperidone to minimize sedation.
- Switch to clozapine to minimize sedation.
- Reduce her quetiapine dose to minimize sedation.
- Consider discontinuing quetiapine since her agitation does not appear to be responding to it.

9 Which of the following is true of antipsychotic use for patients with dementia?

- Antipsychotics are indicated for the treatment of anxiety associated with dementia.
- Antipsychotics with greater anticholinergic effects should be avoided in patients with dementia.
- Antipsychotics should be re-evaluated annually in patients with BPSD.
- Atypical antipsychotics are more effective than typical agents for behavioural disturbances in patients with dementia.
- None of the above.

10 M.F. is a 78-year-old female with dementia who lives in a nursing home. She has been quite anxious and has had difficulty sleeping. Her physician has prescribed quetiapine 25 mg at bedtime to help manage her symptoms. Which of the following is true of her therapy?

- A more appropriate starting dose of quetiapine would be 100 mg for this patient.

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Antipsychotic use in the elderly

Questions

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- b) Quetiapine is an appropriate therapy for her symptoms, especially since she is having trouble sleeping.
- c) Her care team should attempt to assess what is causing her anxiety and look at alternative methods to manage insomnia.
- d) She should receive quetiapine therapy indefinitely because dementia is a progressive condition.
- e) None of the above.

11 Which of the following is true about the use of antipsychotics for elderly patients with delirium?

- a) It is appropriate in most cases to use antipsychotics for the short term to treat delirium.
- b) Antipsychotics are used to treat behavioural and non-behavioural symptoms of delirium.
- c) Antipsychotics with a high propensity for anticholinergic effects, as well as other anticholinergic medications, should be avoided because they can contribute to confusion in delirium.
- d) Both a) and c).
- e) None of the above.

12 D.J. is an 80-year-old male with Alzheimer's disease who lives in an LTCF. He has been taking olanzapine 5 mg for 12 months for the management of his behavioural problems, including aggressive behaviour. His caregiver has noticed new symptoms including facial grimaces and lip smacking. Which of the following is/are true regarding D.J.'s case?

- a) Olanzapine is not likely to cause EPS, so his new symptoms are probably not due to this side effect.
- b) Assuming D.J. is not dangerous to himself or others, he has been taking olanzapine long enough for his physician to attempt to discontinue it.
- c) D.J. may be experiencing akathisia due to olanzapine.
- d) D.J.'s physician should discontinue the olanzapine and start risperidone as it is less likely to cause the side effects he is experiencing.
- e) Both b) and c).

13 For which of the following behaviours associated with dementia in the LTCF resident are antipsychotics considered appropriate?

- a) shouting out at inappropriate times
- b) walking in and out of other residents' rooms
- c) psychotic behaviours (e.g. hallucinations)
- d) anxiety
- e) a), b) and c)

14 V.F. has been diagnosed with Lewy body dementia. He is experiencing delusions that require treatment. Which of the following recommendations is the most appropriate with regard to his medication therapy?

- a) He will respond better to an atypical antipsychotic than to a typical antipsychotic.
- b) Haloperidol is a good choice for treatment of his delusions.
- c) Low-dose quetiapine is likely to be a safe and effective option to treat his symptoms.
- d) Antipsychotics are contraindicated in patients with Lewy body dementia with delusions.
- e) None of the above.

15 Which of the following is/are a consideration with respect to antipsychotic use in the elderly patient?

- a) Lipid-soluble antipsychotics are not likely to accumulate in an older person, so they are a good choice in this population.
- b) Risperidone can have a more pronounced effect in an older person because of reduced protein binding.
- c) Excessive sedation can be a risk associated with antipsychotics with high affinity for histaminic receptors.
- d) High-potency antipsychotics should be avoided in dementia because of their high likelihood of causing anticholinergic effects.
- e) Both b) and c)

16 Which antipsychotic is least likely to cause anticholinergic effects?

- a) risperidone d) olanzapine
- b) clozapine e) ziprasidone
- c) chlorpromazine

17 J.B. is a 75-year-old male with a history of CVA (cerebrovascular accident), Alzheimer's disease, insomnia, dyslipidemia and hypertension. He is currently being treated with

ramipril, acetylsalicylic acid, rosuvastatin, and lorazepam at night. He has begun to shout obscenities and has attempted to hit a number of people around him. Which of the following would be a good therapeutic choice to help manage these symptoms?

- a) chlorpromazine
- b) quetiapine
- c) Either of the above would be a good therapeutic choice.
- d) None of the antipsychotics would be a good therapeutic choice.

18 S.L. is an 80-year-old female patient taking olanzapine for the past few months for paranoia associated with Parkinson's disease. Her movement-related symptoms of Parkinson's disease are generally well-controlled. Which of the following is/are an important part of the pharmacist's monitoring plan for S.L.?

- a) changes in her paranoia symptoms
- b) changes in her Parkinson's symptoms, especially at higher doses of olanzapine
- c) changes in her blood pressure
- d) both a) and b)
- e) all of the above

19 When treating elderly patients who have dementia with antipsychotic therapy, which of the following should be considered with respect to dosing?

- a) The dose of an antipsychotic should be titrated slowly to minimize side effects.
- b) Patients with BPSD who have sporadic behavioural symptoms should be given low doses of antipsychotics on an "as needed" basis.
- c) Lower doses of antipsychotics are more often required in elderly patients than in younger patients.
- d) Both a) and c).
- e) All of the above.

20 A patient taking an antipsychotic and an anticonvulsant may experience higher levels of the antipsychotic if the anticonvulsant is discontinued.

- a) true b) false

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THIS MONTH

Antipsychotic use in the elderly

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All lessons are reviewed by a minimum of six pharmacists for accuracy, currency and relevance to current pharmacy practice.

This lesson is valid until July 28, 2011. Information about antipsychotic use in the elderly may change over the course of this time. Readers are responsible for determining the most current aspects of this topic.

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