PHARMACY PHACTS

2020: Issue 4

Treatment of Common Respiratory Illnesses

Dang Pham, University of Maryland PharmD Candidate 2021
Joshana K. Goga, PharmD, BCPP

Flu, common cold, norovirus, and sinusitis or rhinosinusitis are the most common illnesses that patients can experience during the fall and winter seasons. Although antibiotics are not the recommended treatment for all diagnoses, the flu or common cold may lead to the development of bacterial rhinosinusitis, which requires the use of antibiotics. In the United States, rhinosinusitis affects about 1 in 8 adults, resulting in over 30 million annual diagnoses. Typically, bacterial rhinosinusitis can be treated with amoxicillin or doxycycline.[1]

For patients who have rhinosinusitis, do not have a penicillin allergy, and have no risk factors for pneumococcal resistance, amoxicillin 500 mg three times daily or 875 mg twice daily is considered the first line treatment. For patients with a penicillin allergy, doxycycline 100 mg twice daily or 200 mg once daily are recommended as alternative options. Guidelines recommend a five to seven day treatment course.[2] Data from one meta-analysis demonstrated that longer treatment duration is associated with a greater incidence of adverse events.[3]

According to the CDC, more than 50 million amoxicillin prescriptions were dispensed in 2018, which made it the most prescribed antibiotic of the year.[4] Amoxicillin belongs to the Penicillin antibiotic class. It is a broad-spectrum semisynthetic antibiotic with bactericidal action due to inhibition of microorganism cell wall mucopeptide synthesis. Amoxicillin has shown to be effective against aerobic gram-positive (Enterococcus faecalis, staphylococcus spp., streptococcus pneumoniae, streptococcus spp.), aerobic gram-negative (Escherichia coli, Haemophilus influenzae, Neisseria gonorrhoeae, proteus mirabilis), and helicobacter pylori. Amoxicillin is commonly prescribed to treat infections of the ear, nose, throat, genitourinary tract, skin and soft tissue, lower respiratory tract, and acute uncomplicated gonorrhea. Amoxicillin is contraindicated in patients who experience an anaphylactic reaction with penicillin. The most common side effects of amoxicillin are gastrointestinal symptoms such as nausea, vomiting, and diarrhea.[5]

In 2018, more than 19 million prescriptions of doxycycline were filled, making it the fifth most prescribed antibiotic of the year.[4] Doxycycline is a tetracycline derivative. This antibiotic exerts its bacteriostatic effect by inhibiting microorganism protein synthesis. Like other tetracycline antibiotics, doxycycline has a wide antimicrobial spectrum; therefore, it is approved for the treatment of many infection types. Doxycycline's indications include Rocky Mountain spotted fever, typhus fever, the typhus group, Q fever, rickettsia pox, tick fevers, respiratory tract infections, an infection caused by Chlamydia trachomatis, nongonococcal urethritis, Chancroid, Tularemia, Cholera, Campylobacter fetus infections, Brucellosis, Bartonellosis, and Granuloma inguinale. Doxycycline is contraindicated in patients with history of an anaphylactic reaction to other tetracyclines. Children who are younger than eight years of age should not use this medication due to risk of permanent teeth discoloration. Patients who are taking doxycycline should be educated to avoid excessive sunlight due to the risk of phototoxicity and drink fluid liberally to reduce the risk of esophageal irritation/ulceration. Doxycycline doses should be separated from medication or food containing calcium by at least two hours to prevent doxycycline absorption issues. Common side effects include anorexia, nausea, vomiting, diarrhea, rash, photosensitivity, urticaria, and hemolytic anemia.[6]

References available upon request.

Antidepressant Discontinuation Syndrome

Dang Pham, University of Maryland PharmD Candidate 2021
Joshana K. Goga, PharmD, BCPP

The symptoms of antidepressant withdrawal include flu-like symptoms, headache, lethargy, abdominal pain/cramping, appetite disturbance, diarrhea, nausea, vomiting, sleep disturbance, ataxia, dizziness, lightheadedness, vertigo, blurred vision, numbness, paresthesia, akathisia, myoclonic jerks, tremor, anxiety, agitation, delusion, delirium, and hallucination.[1]

The frequency and severity of the symptoms depend on the elimination half-life of the specific antidepressant. A randomized study was performed in 2008 to evaluate the effect of the rate of antidepressant elimination on the incidence of withdrawal symptoms.[2] The results showed that patients taking medications with shorter half-lives were more likely to experience severe withdrawal symptoms than those taking medications with a longer half-life, such as fluoxetine.

Medication	Half-life (hours)	Active Metabolite
Fluoxetine (Prozac)	84 – 144	Yes
Clomipramine (Anafranil)	22 – 84	No
Mirtazapine (Remeron)	20 – 40	No
Citalopram (Celexa)	35	No
Nortriptyline (Pamelor)	18.2 - 35	No
Escitalopram (Lexapro)	27 – 32	No
Bupropion (Wellbutrin)	12 – 30	Yes
Sertraline (Zoloft)	26	Yes
Amitriptyline	9 – 25	Yes
Desipramine (Norpramin)	14.3 – 24.7	No
Doxepin (Sinequan)	11 – 23	No
Paroxetine (Paxil)	21	No
Duloxetine (Cymbalta)	11 – 16	Yes
Imipramine (Tofranil)	10 – 16	Yes
Venlafaxine (Effexor)	3 – 13	Yes
Trazodone (Desyrel)	7.1	Yes
Phenelzine (Nardil)	1.2	Yes

According to the recommendations for clinical management of antidepressant discontinuation, a medication taken for at least three to five weeks should be slowly tapered off over a span of two to four weeks to prevent withdrawal symptoms.[3] If the treatment duration is less than three weeks, the medication can be tapered off over one to two weeks. For example, for a patient taking paroxetine 50 mg, the dose can be decreased by 10 mg each week over a four week period, followed by drug discontinuation. If withdrawal symptoms occur during the taper, the rate of tapering can be extended over a six to twelve week period. Alternatively, shorter half-life antidepressant medications can be switched to 10 to 20 mg of fluoxetine daily then tapered off to prevent withdrawal symptoms. For example, a patient's paroxetine 50 mg daily can be switched to fluoxetine 20 mg daily for two weeks, decreased to 10 mg daily for two weeks, and then discontinued.

In order to minimize the risk of serotonin syndrome, switching from fluoxetine to other antidepressant medications is more complicated due to its long half-life.[4] The process can vary depending on the new antidepressant's class, treatment setting, and level of acuity. Consider switching fluoxetine to another selective serotonin reuptake inhibitor (SSRI) by starting the new SSRI medication immediately at the lowest dose. If switching fluoxetine to a serotonin-norepinephrine reuptake inhibitor (SNRI), consider a washout period between four to seven days before starting the SNRI. If switching fluoxetine to a monoamine oxidase inhibitor (MAOI), allow a washout period of at least five weeks before starting the MAOI.

In conclusion, patient education regarding the risk of withdrawal symptoms and the importance of treatment adherence is essential. To minimize the risk of withdrawal symptoms, recommendations surrounding management of antidepressant discontinuation should be followed.

References available upon request.

Risks Associated with Mood Stabilizer Discontinuation

Alexandra Clyde, University of Maryland PharmD Candidate 2021
Joshana K. Goga, PharmD, BCPP

Medication adherence can be challenging for many patients, and studies have demonstrated that up to 60% of patients with bipolar disorder are at least partially non-adherent to their medication.[1] Medication non-adherence both increases the risk of relapse and may place the patient at a greater seizure risk when medications are abruptly discontinued. Bipolar mood disorders are treated with mood stabilizers as maintenance therapy. This class includes lithium as well as anticonvulsant therapies such as valproate, divalproex, lamotrigine, and carbamazepine. It is important to educate patients on the benefits of medication adherence and the risks of discontinuing medication without collaborating with their provider.

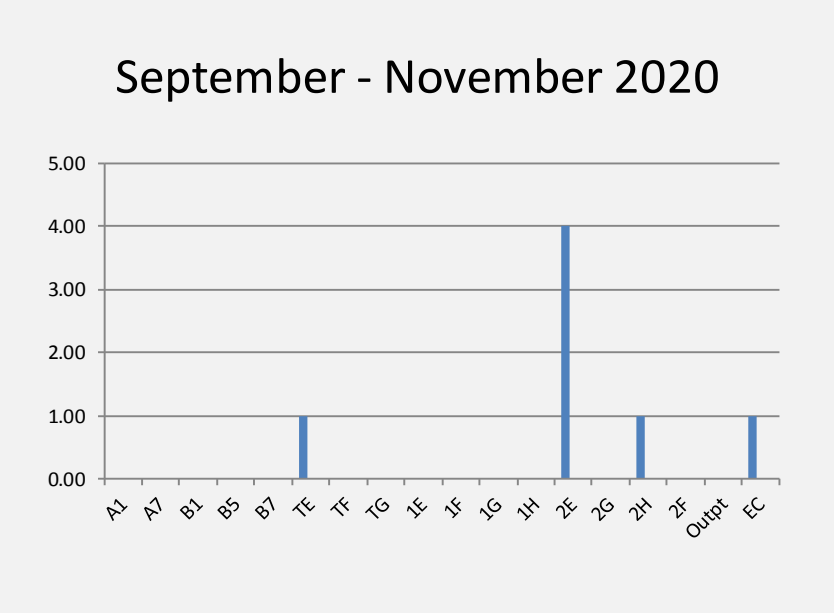
Patients who discontinue their medication without the supervision of a provider may experience the serious consequence of possible seizures. About ten percent of acute symptomatic seizures in elderly adults are caused by medications or medication withdrawals.[2] Anticonvulsants utilized as mood stabilizers have the potential to cause seizures in patients with or without a seizure history in the event of abrupt discontinuation.[3] Older adults are more susceptible to seizures due to polypharmacy, impaired renal function, and increased sensitivity to proconvulsant side effects of medications.[2] Abrupt discontinuation of anticonvulsants can induce a seizure due to loss of protective effect against seizures, which is most notable for valproate.[4] All patients should be educated about this withdrawal risk to emphasize the importance of adherence to mood stabilizers in the anticonvulsant class.

Patients suffering from bipolar disorder can cycle through manic, depressive, and euthymic episodes. The goal of a mood stabilizing medication is maintenance of a euthymic mood. One consequence of abrupt mood stabilizer discontinuation is a "relapse," which is defined as a recurrence of a manic or depressive episode.[5] These tend to happen within a couple of months following discontinuation regardless of the length of a patient's previous maintenance therapy.[6] A relapse can also occur in instances of significant dose reduction rather than a more gradual taper.[6] The potential for increased severity in the return of mood instability is the primary danger of these relapses. Studies have observed a sixteen-fold increase in non-lethal suicidal behavior in patients after abruptly discontinuing lithium, divalproex, and carbamazepine.[7] Even though no increase in lethal suicides occurred, this abrupt change in mood can significantly affect a patient's quality of life.[7] It is important that patients remain informed participants in medication management to avoid these pronounced relapses in mood instability that can occur with abrupt, unsupervised medication discontinuation.

Mood stabilizing medications, including lithium and anticonvulsants, are effective for achieving a euthymic mood; however, abrupt discontinuation can lead to serious clinical consequences. Practitioners should reinforce the importance of adherence and collaboration during times of medication discontinuation to avoid adverse events, ensure continued remission of symptoms, and improve patient quality of life.

References available upon request.

Number of ADRs Reported



You may report an ADR by calling x3784 or entering the data into the Sunrise Allergies System as detailed above.

A publication of the SPHS Department of Pharmacy Services