

Treatment of Constipation

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Laxative Agents

Drug	Dosing	Onset of action	Side effects
Bulk-forming agents form a gel that helps fecal elimination and promotes peristalsis			
Methylcellulose (<i>Citrucel</i>)	Caplet: 1-6 g/day Powder: 2-6g/day	12 to 72 hours	Gas Bloating
Polycarbophil (<i>FiberCon</i>)	1,250 mg 1-4 times/day		
Psyllium (<i>Metamucil</i>)	2.3-30g/day in divided doses		
Osmotic agents draw fluid into the bowel lumen through osmosis, which expands the colon and increases peristalsis			
Lactulose (<i>Constulose</i>)	10-20 g daily	12 to 72 hours	Gas Dehydration Electrolyte imbalance
Polyethylene glycol 3350 (<i>Miralax</i>)	17 g in 4-8 oz of water daily (do not use for >7 days unless directed by health care provider)		
Magnesium hydroxide (<i>Milk of Magnesia</i>)	2.4-4.8 g at bedtime or in divided doses	1-6 hours	
Glycerin (<i>Fleet</i>)	Insert 1 suppository into the rectum (PRN)	15-60 minutes	Rectal irritation
Stool softener softens fecal mass and makes defecation easier			
Docusate sodium (<i>Colace</i>)	100-300 mg daily or in divided doses	12-72 hours	
Stimulant laxative directly stimulate colonic neurons causing peristaltic activity			
Senna (<i>Sennakot</i>)	17.2 – 50 mg daily or twice a day	6 to 12 hours	Dehydration Electrolyte imbalance
Bisacodyl (<i>Dulcolax</i>)	Oral: 5-15 mg daily Suppository: 10 mg rectally daily (PRN)	Oral: 1-6 hours Rectal: 15-60 minutes	
Lubricants coat the bowel with waterproof film, moisturizing the stool and making defecation easier			
Mineral Oil (<i>Fleet Oil</i>)	Oral: 15-45 mL daily Rectal: 118mL enema (PRN)	Oral: 6-8 hours Rectal: 2-15 minutes	Nausea Abdominal cramps

PRN = as needed use

Volume

19

Spring 2019

JOURNAL OF
The Valley
Hospital Pharmacy

Pharmacy Focus

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Treatment of Constipation

by Galina Pyatigorsky and Arienne Callender
FDU PharmD Candidates 2019

Constipation is defined as persistent difficulty in bowel movement associated with infrequent or incomplete defecation. Constipation may be **caused by:**

- diet that is low in fiber
- inadequate fluid intake
- decreased physical exercise
- medications
- underlying medical conditions (such as gastrointestinal, metabolic, or cardiac disorders).

Laxatives that are used to treat constipation are classified into three categories based on the time they take to start working:

- agents that soften feces in 1 to 3 days include bulk-forming laxatives: docusate, low-dose polyethylene glycol, and lactulose
- agents that result in soft stool within 6 to 12 hours include bisacodyl, senna, and magnesium sulfate
- agents that cause water evacuation within 1 to 6 hours are saline cathartics and castor oil.

Lifestyle modifications that are recommended in the management of constipation include:

- gradually increasing the daily amount of fiber consumed to about 20 - 25 g/d
- increasing daily fluid intake
- exercising regularly
- It is also recommended to adjust bowel habits so that adequate time is taken to respond to the urge to defecate.

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By Galina Pyatigorsky

FDU PharmD Candidate 2019

Question: Is aspirin 325 mg by mouth once daily an appropriate dose for deep vein thrombosis (DVT) prophylaxis following hip arthroplasty?

Answer: According to the American Academy of Orthopaedic Surgeons (AAOS) guidelines, the recommended dose of aspirin for DVT prophylaxis is 325 mg by mouth twice daily (BID).¹

A study published in 2017, compared low dose aspirin (81 mg BID) and high dose aspirin (325 mg BID) for DVT prophylaxis in 4,651 total joint arthroplasty patients. The study showed that there was no difference in DVT, mortality, or bleed between the two dosage regimens.²

A cardiology study from 2017 evaluated once daily versus twice daily aspirin dosing (same total daily dose) and measured platelet activation. They concluded that there was no difference in platelet activation in BID vs daily dosing.³

Although there is evidence to support this dose, guidelines do not support this regimen.

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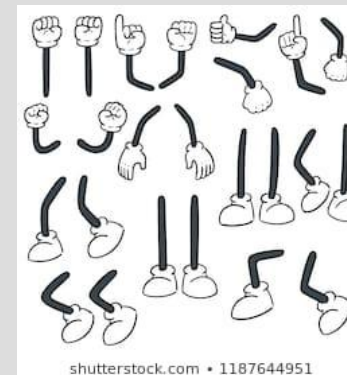
Management of Peripheral Artery Disease: Lifestyle, Statin, and Antiplatelet

Patients presenting with acute symptoms indicative of hypoperfusion such as rest pain, pallor, pulselessness, oikilothermia (cold), paresthesias, and paralysis may benefit from surgical revascularization or percutaneous interventions. In patients with lifestyle limiting claudication with an inadequate response to pharmacologic therapy, revascularization may improve quality of life. Following revascularization, patients should be maintained on antiplatelet therapy to reduce cardiovascular risk with either baby aspirin, clopidogrel. In patients who underwent below the knee bypass graft with a prosthetic graft, dual antiplatelet therapy for 1 year may be appropriate.¹

Peripheral artery disease is a narrowing of arteries in the legs due to atherosclerosis. This can result in significant morbidity, mortality, and quality of life impairment. Management for PAD consists of lifestyle modification, treatment of comorbid conditions, pharmacologic therapy, and revascularization.

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History and Impact of Immunizing Pharmacists

By Elizabeth Hay, MBA, PharmD, PGY-1 Community Pharmacy Resident

It's estimated that vaccine-preventable diseases kill more Americans than either breast cancer, HIV/AIDS, or traffic accidents annually.¹ As the most accessible healthcare professionals, pharmacists have always had a unique opportunity to provide patient education on vaccinations, and in the early 1990s, pharmacist scope of practice was expanded to vaccine administration.²

History of Immunizing Pharmacists

The first organized immunization training for pharmacists was held in late 1994 in Seattle, Washington.¹ In 1995, 9 states allowed pharmacists to immunize,² and in 1996, the American Pharmacists Association (APhA) established its Pharmacy-Based Immunization Delivery program. With an estimated 320,000 pharmacists³ trained to administer vaccines, pharmacists immunize in all 50 states, the District of Columbia, and Puerto Rico under state laws and regulations.¹

Immunizing Pharmacists in New Jersey

In New Jersey, pharmacists have been administering vaccinations since 2003. Pharmacists obtain Immunization Approval from the NJ Board of Pharmacy after completion of an ACPE-approved, academic and practical curriculum that includes vaccine education and administration, and the American Heart Association BLS protocol and Red Cross Adult CPR protocol. Immunization Approval is renewed on a biennial basis and requires at least 2 hours of continuing education in immunizations.⁴ Effective March 2019, NJ expanded vaccination authority to student pharmacists, who, once the regulations are written and implemented, will be authorized to administer vaccines under appropriate supervision by a licensed pharmacist.⁵

Impact in the Community

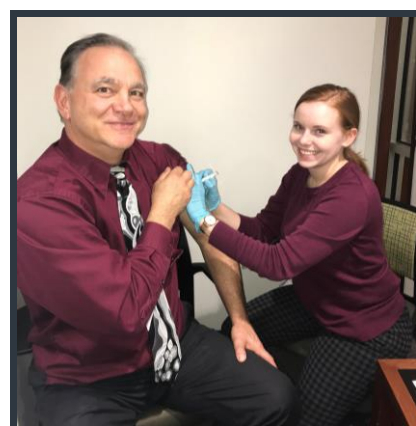
In 2015, the CDC applauded the accomplishments of pharmacists' vaccine efforts, showing an increase from 6% (2004-2005) to more than 18% (2013-2014) of adults receiving flu vaccination in the community setting.⁶ Project IMPACT Immunizations is a multi-phase initiative by the APhA Foundation, aimed to identify unmet vaccination needs using an innovate care model (including screening, education, and administration) in participating pharmacies. In a 6-month pilot study from October 2015-March 2016, over 1,500 additional vaccinations identified as due for 1,080 patients at the time of receiving their influenza vaccine. Of those identified, 33.5% of the unmet vaccination needs were resolved within 6 months, with 95.3% being administered by a pharmacist at the point-of-care.⁷

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Resident pharmacists Elizabeth Hay (left photo, L) and Rachel Nottebart (right photo, R) provide flu shots to employees.



Management of Peripheral Artery Disease: Lifestyle, Statin, and Antiplatelet

By Rachel Nottebart, PharmD, PGY-1 Resident

Peripheral artery disease (PAD) is a common cardiovascular disease affecting nearly 8.5 million Americans above the age of 40. PAD is a narrowing of the arteries most commonly in the legs due to atherosclerosis leading to significant morbidity, mortality, and quality of life impairment. **Risk factors** for PAD include advanced age, smoking, diabetes, hypertension, and hyperlipidemia. Signs and symptoms can vary. Patients may present classically with intermittent claudication (exercise induced leg pain relieved by rest), impaired walking function, ischemic rest pain, non-healing lower extremity wounds, or patients may be asymptomatic. PAD is typically diagnosed in patients with an ankle brachial index (ABI) ≤ 0.9 .¹ Management for PAD includes lifestyle modification, revascularization, and pharmacologic therapy.

Lifestyle modifications recommended for patients with PAD focus on modifiable risk factors. Patients should be encouraged to quit smoking, avoid exposure to tobacco smoke, and manage comorbid disease states such as hypertension and diabetes. Additionally, patients with claudication may benefit from structured exercise programs consisting of 30-45 minute sessions three times a week for a minimum of 12 weeks involving intermittent bouts of walking to moderate-maximum claudication alternating with periods of rest. Structured exercise programs have been shown to help improve functional status, reduce leg symptoms, and improve quality of life. Patients with PAD should also be counseled to perform self-foot inspections and on healthy foot behaviors (i.e. wear shoes and socks, and avoid walking barefoot) to aid in prompt infection recognition and in turn help minimize tissue loss.¹

Peripheral artery disease is a cardiovascular risk equivalent, and as such patients should be treated with a statin to decrease risk for atherosclerotic cardiovascular disease. Patients 75 years or younger should be treated with a high intensity statin, and those over 75 years old should be treated with either a moderate or high intensity statin.² In addition to structured exercise programs, patients with claudication **may benefit from the addition of phosphodiesterase inhibitor cilostazol**. Cilostazol has been shown to improve symptoms and increase walking distance in patients with PAD.

Patients with PAD may also benefit from antiplatelet therapy. Guidelines recommend aspirin 81 mg daily to decrease the risk for MI, stroke, and vascular death in patients with asymptomatic PAD. In patients with symptomatic PAD, either baby aspirin or clopidogrel is recommended.¹ The recent COMPASS trial evaluated the use of low dose rivaroxaban (an oral factor Xa inhibitor) in patients with atherosclerotic cardiovascular disease, including those with both symptomatic and asymptomatic PAD. **Rivaroxaban 2.5 mg BID in addition to low-dose aspirin daily** was found to reduce the relative risk of the composite outcome of cardiovascular death, stroke, and MI by 28% specifically in the PAD subgroup compared to the current standard of aspirin alone. However, the trial also found higher rates of major bleeding events in patients taking rivaroxaban + aspirin compared to those taking aspirin alone with a hazard ratio of 1.70 (95% CI, 1.40-2.05; $P < 0.001$).³ Low dose rivaroxaban in addition to low-dose aspirin may be a more effective option for patients with PAD who do not have a high risk of bleed.

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