




Vaccines and Medicines for Short-Term Trips

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Disclosure Information

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I have no financial relationship to disclose.

I will discuss the following off-label use and/or investigational use in my presentation:

- off-label malaria prophylaxis
- off-label Travelers' Diarrhea prophylaxis
- off-label use of antihistamines in pediatrics

Learning Objectives

- At the completion of this activity, the participant will be able to:
 - Discuss the pathophysiology and clinical course of common conditions occurring with travel medicine
 - Compare and contrast the rationale for the use of certain drugs in travel medicine
 - Develop a care plan for the prophylactic treatment of tropical diseases
 - Design an appropriate plan for monitoring safe and effective pharmacotherapy of tropical diseases
 - Formulate a plan to provide patient counseling for disease states and medications common for travel medicine

Pre-Trip Thoughts

- Reason for Trip
- Destination(s)
- Vaccination requirements
- Prophylactic Medications
- Altitude
- Motion Sickness
- Medications to take with you

Incidence Rate per Month in Developing Countries

- Traveler's Diarrhea: 20 - 60%
- Malaria without chemoprophylaxis: 3%
- PPD conversion: 0.4%
- Malaria with chemoprophylaxis: 0.2%
- Hepatitis A, Typhoid: < 0.1%
- Hepatitis B, HIV, fatal accident: < 0.01%
- Cholera, Legionella, Poliomyelitis: < 0.001%

Steffen R, Amritrigala I, Mutsch M. Health risks among travelers - need for regular updates. *J. Travel Med.* 2008;15(3): 145-6.

Vaccines

- All patients considering international travel should be up to date on their routine vaccinations as determined by the CDC and Advisory Committee on Immunization Practices
- These vaccines include:
 - DTap/Tdap
 - Hepatitis A & B
 - Influenza
 - MMR
 - Pneumococcal
- Recommended vaccinations based on your destination
 - <http://www.cdc.gov/travel/>

Vaccines (cont)

- Yellow Fever
 - Documentation required for entrance to some countries
- Typhoid Fever
 - Oral (Vivotif®): every other day x 4 doses.
 - Repeat every 5 years
 - > 6 years old
 - IM (Typhim Vi®): 0.5ml IM x 1 dose.
 - Repeat every 2 years
 - > 2 years old

Traveler's Diarrhea

- Largely, but not entirely, preventable by following safe eating rules:
 - If it's not from a sealed bottle, don't drink it
 - No ice
 - Don't eat from street vendors
 - Fruits/veggies - only eat if you can peel it or cooked
 - Only eat at "tourist" restaurants

Traveler's Diarrhea (cont)


- Can be caused by bacteria (80-90%), viruses (5-8%), protozoa (8-10%)
- Bacteria**
 - E. coli* (most), *C. jejuni*, *Shigella*, *Salmonella*
- Viral**
 - Norovirus, rotavirus, astrovirus
- Protozoa**
 - Giardia*
- High Risk areas: most of Asia, Middle East, Africa, Mexico, Central and South America

Traveler's Diarrhea - Presentation

- Bacterial** - sudden onset; malaise; mild-severe cramping/abdominal pain; urgent, loose stools; ± vomiting. 3-5 days untreated
- Viral** - fairly similar to bacteria. Increased vomiting possible. 2-3 days untreated
- Protozoal** - delayed onset (1-2 weeks), gradual onset of symptoms, belching, malaise, foul-smelling, fatty stools. Weeks-months untreated


Traveler's Diarrhea - Treatment

- Rehydration
- Antimotility agents
 - Caution if fever > 101°F or bloody diarrhea
- Bacteria**
 - empiric treatment with:
 - ciprofloxacin x 1-2 days or
 - rifaximin 200mg TID x 3 days or
 - azithromycin 1gm x 1 dose or 500mg QD x 3-5 day
- Protozoa**
 - Metronidazole, tinidazole, nitazoxanide




Traveler's Diarrhea - Prophylaxis

- Not routinely recommended unless immunocompromised
- Bismuth subsalicylate
 - 2 tabs QID or 60ml QID
- Antibiotics – increased resistance limits effectiveness
- Can try ciprofloxacin, doxycycline, trimethoprim-sulfamethoxazole, rifaximin
- Remember that early tx w/ antibiotics can limit duration of TD to 24 hours or less



Malaria

- Caused by *Plasmodium* protozoa transmitted by the bite of the female *Anopheles* mosquito
- Roughly 220 million infections per year worldwide with over 400,000 deaths.
- About 1700 cases per year in the US from travelers
- Incidence varies greatly depending on country
- <http://www.cdc.gov/malaria/>



Malaria – Prophylaxis

- All regimens must be taken for a period of time prior to the trip, while on the trip, and a period of time after the trip
- Some areas of the world show resistance to common antimalarials
- Some areas of some countries may not have malaria present

Malaria – Prophylaxis

- **Chloroquine**
- Begin 1-2 weeks before travel, during travel, and continue for 4 weeks after travel
- Adults: 500mg once a week (same day)
- Peds: 8.3mg/kg/week (same day)
- Can use in pregnancy, breastfeeding, and infants
- Widely resistant – can use only for travel to Caribbean, Central America, and few areas in Asia

Malaria - Prophylaxis

- Chloroquine Contraindications
 - QT prolongation
 - Retinal/visual changes from prior use
 - Psoriasis
- Common Adverse Reactions
 - GI upset, HA, dizziness
- May take with food to avoid GI upset
- Should monitor eyes and CBC with prolonged use

Malaria - Prophylaxis

- **Doxycycline**
- Begin 1-2 days before travel, during travel, and continue for 4 weeks after travel
- Adults: 100mg once a day
- Peds: > 8 yo: 2.2mg/kg/day
- Do not use in pregnancy, breastfeeding, or < 8 years old

Malaria – Prophylaxis

- Doxycycline Contraindications
 - Pregnancy and peds < 8 years old
- Common Adverse Reactions
 - GI upset, diarrhea, photosensitivity, esophagitis
- Take with meals if GI upset occurs
- Remain upright for 30 min to prevent esophagitis
- Sunscreen!!!

Malaria – Prophylaxis

- **Mefloquine**
- Begin 1-2 weeks before travel, during travel, and continue for 4 weeks after travel
- Adults: 250mg once a week
- Peds: > 6 months old: once a week based on weight
- Caution in pregnancy, breastfeeding, peds < 6 months old
- Increasing resistance in some parts of the world

Malaria - Prophylaxis

- Mefloquine Contraindications
 - History of seizures
 - History of psychiatric disorder
- Common Adverse Reactions to Mefloquine
 - GI upset, headache, insomnia, vivid dreams, dizziness, visual disturbances
- Take with food and 8oz of water
- Can be crushed and mixed in beverage

Motion Sickness

- Symptoms include nausea, vomiting, sweating, feeling of uneasiness, pallor
- Anticholinergics/antihistamines are the treatment of choice
 - Scopolamine patch - 1.5mg patch behind alternating ear every 3 days. Start > 4 hrs before travel
 - Dimenhydrinate
 - Adults: 50-100mg every 4-6 hours up to 400mg/day
 - 6-12 yo: 25-50mg every 6-8 hours up to 150mg/day
 - 2-5 yo: 12.5-25mg every 6-8 hours up to 75mg/day
 - Others
 - Meclizine

Motion Sickness (cont)

- Contraindications of anticholinergic/ antihistamine therapy:
 - Narrow-angle glaucoma
 - Urinary retention
 - GI obstruction
 - Myasthenia gravis
- Common Adverse Reactions:
 - Dry mouth, drowsiness, blurred vision, thick respiratory secretions
- Pregnancy/Lactation: Use with caution
- Pediatrics: Not FDA indicated

Cholera

- Bacterial disease spread by drinking water or eating food contaminated with cholera bacteria
- Can lead to severe, watery diarrhea as well as nausea/vomiting
- Prevention is key - avoid contaminated foods/drink
- Vaccine

Cholera (cont)

- Vaxchora – single-dose oral cholera vaccine
 - 90% effective at 10 days but wanes to 80% at 3 months
 - Still new so not sure how long protection lasts beyond 3-6 months after getting vaccine
- Treatment – FLUIDS!
 - Antibiotics - only in severest cases
 - Doxycycline, azithromycin or ciprofloxacin

Zika

- Found pretty much everywhere in the tropics
- Transmitted by mosquito, mother to child, sexually, blood transfusion
- Symptoms – few people have symptoms and if so it's "flu-like"
- No specific treatment for Zika
- No vaccine

Zika (cont)

- Travel Recommendations for Zika
 - If you are pregnant: Do not travel to Zika area
 - If you are planning to get pregnant:
 - Male traveler – wait 6 months
 - Female traveler – wait 2 months

Travel Med Case

- A 29 year-old female brings a Rx for 10 tablets of Chloroquine 500mg. She is a chaperone on an upcoming missions trip for her church's High School and College age youth group. She would like to have the Rx filled and wonders if there is anything else she should have with her.

Travel Med Case

- What questions should you ask her?
- Is her Rx appropriate?
- Is there anything else you'd recommend she take?

Key References

- Steffen R, Amitirigala I, Mutsch M. Health risks among travelers – need for regular updates. *J. Travel Med.* 2008;15(3): 145-6.
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