

# *Toxoplasma* Encephalitis: Prevention

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# Disclosures

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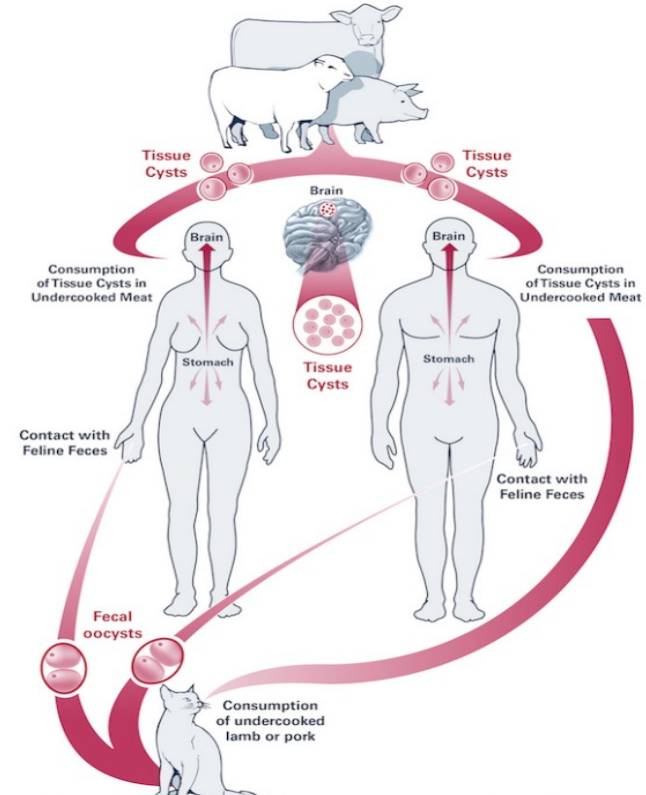
# Toxoplasma Prevention: Outline

- Background and Rationale
- Screening
- Prevention
  - Criteria for starting and stopping prophylaxis
  - Prophylaxis options
- Medication side-effects
- Summary

# Background and Rationale

# Background: Toxoplasma encephalitis

- *Toxoplasma gondii* is a protozoal parasite
- Accidental ingestion risk factors include contact with cat feces or eating undercooked red meat or raw shellfish
- Disease occurs from reactivation of latent cysts when  $CD4 < 100 \text{ cells/mm}^3$
- Symptoms include fever, headache, seizures, encephalitis



# Screening

# Screening for Latent Toxoplasma Infection in People with HIV

- All PWH should be tested for IgG antibodies to *T. gondii* at the time of initial diagnosis
- PWH who are seronegative for *T. gondii* Ab, should undergo repeat testing:
  - IF their CD4 count decreases to  $<100$  cells/mm<sup>3</sup> AND
  - They are not already taking medication that provides prophylaxis for *Toxoplasma* encephalitis

# Counseling Persons with Negative Toxoplasma IgG: Dos & Don'ts



Don't change cat litter box



Do wear gloves if you have to change cat litter and wash hands thoroughly after



Don't eat undercooked meat or raw shellfish



Do wash raw fruits and vegetables well before eating them



Don't consume unpasteurized dairy products



Do wear gloves and wash hands after handling soil



# Prevention

# Indications for Primary Prophylaxis for *Toxoplasma* Encephalitis

- Seropositive for *Toxoplasma* IgG
- and*
- CD4 cell count < 100 cells/mm<sup>3</sup>

# Toxoplasma Prevention: Options for Prophylaxis

## Trimethoprim-sulfamethoxazole

- **(preferred)** 1 double-strength tab daily
- 1 single strength tablet daily effective & may be better tolerated
- 1 double strength tablet 3 times per week also effective

## Dapsone

- Check G6PD level, expensive regimen due to cost of pyrimethamine
- 50 mg po daily + (Pyrimethamine 50 mg + leucovorin 25 mg) po weekly
- 200 mg po daily + (Pyrimethamine 75 mg + leucovorin 25 mg) po weekly)

## Atovaquone

- Liquid; bad taste; expensive
- 1500 mg po daily +/- (Pyrimethamine 25 mg + leucovorin 10 mg) po daily

# When to Discontinue Primary Prophylaxis for *Toxoplasma* Encephalitis

- CD4 cell count  $>200$  cells/mm<sup>3</sup> for at least 3 months after ART initiation
- Can consider if CD4 between 100-200 cells/mm<sup>3</sup> + viral suppression on ART for at least 3-6 months

# When to Restart Primary Prophylaxis for *Toxoplasma* Encephalitis

- CD4 cell count  $< 100$  cells/mm<sup>3</sup> regardless of viral load *or*
- CD4 is between 100-200 cells/mm<sup>3</sup> + detectable viral load

# Medication Side-Effects

# Side effects of medications used for Toxoplasma prophylaxis

Medication	Potential common side effects
TMP-SMX	Renal dysfunction Hyperkalemia Leukopenia Steven Johnson syndrome Rash Hepatitis
Dapsone	Hemolytic anemia (if used in PWH with G6PD deficiency) Methemoglobinemia Contains sulfonamide*
Atovaquone	Bad taste
Pyrimethamine	Expensive Nausea & vomiting Bone marrow suppression (if not co-administered with leucovorin)

\*Potential cross-reactivity with other sulfa-containing drugs, but dapsone not contraindicated in patients with sulfonamide allergy

# Summary



# Toxoplasma Prophylaxis: Summary

- Prophylaxis indicated in all PWH with CD4  $<100$  cells/mm<sup>3</sup> who are *Toxoplasma* IgG seropositive
- The preferred drug for prophylaxis is TMP-SMX
- Alternative therapies include:
  - Dapsone + pyrimethamine and leucovorin OR
  - Atovaquone +/- pyrimethamine and leucovorin
- Always check G6PD level prior to dapsone use
- Use of dapsone in someone intolerant of TMP-SMX depends on severity of TMP-SMX reaction
- Prophylaxis can be discontinued once immune reconstitution has occurred on ART

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