1. Which of the following is true?

A. Worldwide, dogs are the most commonly rabies-infected animals.
B. Despite similarities to dogs, foxes rarely carry rabies.
C. Skunks are the most common source of rabies in the US.
D. Due to efforts by the WHO, deaths from rabies have dropped to less than 5000 cases/year.
E. Rabbits and other lagomorphs almost never carry rabies because they are herbivores.
2. Regarding clinical rabies:

A. There are three distinct stages: prodrome, acute neurological illness, death.
B. The incubation period is typically < 72 hours.
C. Hydrophobia is largely mythical and is almost never seen.
D. One-quarter of patients with clinically-evident rabies will survive, although with neurologic sequelae.
E. The duration of the incubation period depends on the severity of the bite.
3. Post-exposure rabies prophylaxis

A. Includes gentle wound irrigation with saline only, so as not to irritate tissues and increase the risk of viremia.
B. Should include immunoprophylaxis for a pt who awakens to find a bat in her tent, even without a known bite.
C. Should include human rabies immunoglobulin (HRIG) applied topically to the wound.
D. Involves the same regimen worldwide regardless of the type of exposure or country of origin.
4. Which of the following is not commonly seen with encephalitic, or “furious” rabies?

A. Hydrophobia – the fear of being in contact with water
B. Aerophobia – the fear of air in motion
C. Hyperactivity in response to light exposure
D. Seizures
E. Excessive salivation
5. Which is true in making the diagnosis of Lyme disease?

A. Erythema chronicum migrans (ECM) is always a macular rash with central clearing.
B. 10% of patients cannot recall the tick bite.
C. Arthritis of early Lyme disease is episodic, symmetrical, polyarticular and attacks small joints.
D. Common sites for ECM include ankles and skin folds.
E. ECM is seen in 50% of early Lyme disease.
6. Which of the following is the correct pair?

A. Lyme disease – caused by a virus
B. Rocky Mountain Spotted Fever – *Ixodes* sp. ticks
C. Tularemia – lagomorph reservoir
D. Tick paralysis – *Rickettsia rickettsii*
E. Relapsing fever – parasitic (protozoal)
7. You suspect tick paralysis (TP) in an 8-year-old boy.

A. Treatment of choice is doxycycline for 3 weeks.
B. TP is an ascending flaccid paralysis 4-7 days after tick attachment.
C. TP is commonly seen in the southwest, distinguishing it from other tick-borne illnesses.
D. A single dose of antibiotics is needed to kill the bacteria that produce the neurotoxin.
E. The neurotoxin prevents acetylcholine breakdown.
8. A 35-year-old “outdoorsy” male presents to your ED in upstate NY after syncope. You see a HR of 40-bpm with occasional p-waves. You realize:

A. This cannot be due to Lyme disease as you see no ECM rash.
B. You should administer aspirin immediately.
C. This conduction abnormality can be managed outpatient.
D. This patient needs a temporary cardiac pacemaker.
E. The treatment of choice is still oral doxycycline.
9. Which of the following is true regarding Lyme disease?

A. Cattle are the preferred hosts of *Ixodes scapularis*
B. Culture of blood/tissue is the gold standard for diagnosis
C. *Borrelia burgdorferi*, a spirochete, spreads to all tissues
D. Skin lesions on the palms and soles are common
E. Once chronic symptoms develop, antibiotics are no longer useful
Regarding Rocky Mountain spotted fever (RMSF):

A. A maculopapular rash is the most common symptom.
B. It is most commonly seen in Montana, Idaho, Colorado and Utah.
C. *Rickettsia rickettsii* are obligate intracellular bacteria that live in platelets. This leads to thrombocytopenia / petechiae.
D. Early RMSF mimics any self-limited febrile viral illnesses.
E. A triad of fever, rash and tick bite is seen in 33% of cases.
ACES
Assessment of Core-Content Education Series
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RABIES

- Lyssavirus (rhabdoviridae) – RNA
- Preference for CNS tissue
- In US:
  - Raccoons most common carrier
  - Bats most common infector
- Worldwide: Dogs most common
RABIES SYNDROME

5 stages of rabies infection:
- Incubation (30-90) days
- Prodrome – flu-like syndrome
- Acute neurological illness
  - Excitement
  - Opisthotonus
  - Hydrophobia
  - Salivation, lacrimation, unsteady gait
- Coma
- Death
RABIES TREATMENT

- Aggressive wound washing
  - Virucidal agent
- Human rabies immune globulin
  - HRIG 20 IU/kg (local if poss)
- Human diploid cell vaccine
  - HDCV days 0, 3, 7, 14, 28
- In US treat:
  - skunk, raccoon, fox, bat
TICK-BORNE ILLNESS

Lyme Disease:
• Borrelia burgdorferi
• Ixodes ticks (white tailed deer)
• 3 stages of disease:
  1. Localized – rash
     Erythema migrans: annular, expanding erythematous lesion with central clearing (spares palms, soles)
TICK-BORNE ILLNESS

Lyme Disease:
• 3 stages of disease:
  1. Localized – rash
  2. Disseminated – neuro / cardiac
     Neuro: CN VII palsy, meningitis, peripheral neuropathy
     Cardiac: myocarditis, pericarditis, heart block
TICK-BORNE ILLNESS

Lyme Disease:
- 3 stages of disease:
  1. Localized – rash
  2. Disseminated – neuro / cardiac
  3. Persistent – arthritis
TICK-BORNE ILLNESS

Lyme Disease:
• Diagnosis – ELISA for screening
  Western Blot to confirm
• Treatment
  • doxycycline
  • erythromycin
  • amoxicillin
  • ceftriaxone if unstable / ill
TICK-BORNE ILLNESS

Rocky Mountain Spotted Fever:
- Rickettsia rickettsii
- Multiple tick species
- Southeastern US
- April – September
TICK-BORNE ILLNESS

Rocky Mountain Spotted Fever:
• Flu-like syndrome – fever, HA, myalgias
• Rash – begins distal, spreads proximal
  macules → petechiae → purpura (d/t vasculitis)
TICK-BORNE ILLNESS

Rocky Mountain Spotted Fever:
• Diagnosis – clinical!
• Complications (vasculitis)
  Confusion / sz / delirium
  DIC
  Heart failure / ARDS
  Renal failure
  Loss of digits / limbs
• Treatment – doxycycline, chloramphenicol
TICK-BORNE ILLNESS

Ehrlichiosis:
- Similar syndrome to RMSF
- Two types: HME: human monocytic
  HGE: human granulocytic
- Pancytopenia, hypoNa++, ↑ LFTs
- Dx: clinical suspicion
- Tx: doxy, tetracycline, chloramphenicol
- Complications: DIC, renal failure, coma, death
TICK-BORNE ILLNESS

Babesiosis:
• Malaria-like hemolytic disease
• Intra-erythrocyte protozoa
• Sx: often asx, fevers, malaise, hepatosplenomegaly, jaundice
• Dx: peripheral smear
• Tx: only immunocomp, quinine + clinda or atovaquone + azithro
TICK-BORNE ILLNESS

Tularemia:
- Gram- coccobacillus *Francisella tularensis*
- Lagomorph reservoir
**TICK-BORNE ILLNESS**

**Tularemia:**
- Gram- coccobacillus
- Lagomorph reservoir
- Sx: 1. ulceroglandular
  - 2. glandular
  - 3. oropharyngeal
  - 4. pneumonic
  - 5. oculoglandular
  - 6. typhoidal

**Tx:** doxy, gent

**Dx:** clinical, serology