ALPHA UNIVERSITY BORAMA

FACULTY OF HEALTH SCIECENE

DEPARTMENT OF PHARMACTY

COURSE: COMMMUNICABLE DISEASE

ASSIGMENT

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TITLE: Arthropod borne infection

1.Introduction Arthropod-Borne Infection.

Arthropod-borne infections, commonly known as vector-borne diseases, are illnesses caused by viruses, bacteria, or parasites that are transmitted to humans through the bites of infected arthropods. These arthropods include mosquitoes, ticks, fleas, lice, and sandflies. These diseases represent a major global public health concern, especially in tropical and subtropical regions where environmental conditions make it easy to spread and transmission.

Transmission typically occurs when the arthropod feeds on the blood of a human or animal, injecting the pathogen into the host's bloodstream.

Examples of common arthropod-borne infections include malaria, dengue fever, Zika virus, Lyme disease, and yellow fever. These diseases can range from mild febrile illnesses to severe, life-threatening conditions affecting multiple organ systems.

2. Types of Arthropod-Borne Infections.

Arthropod-borne infections are classified based on the type of pathogen (virus, bacteria, or parasite) and the arthropod vector (mosquito, tick, flea, etc.). Here are the main types:

Viral Infections (Arboviruses)

Dengue fever – by Aedes mosquitoes

Yellow fever – by Aedes mosquitoes

Tick-borne encephalitis – by ticks

2. Bacterial Infections

Transmitted by ticks, fleas, lice, etc.

Lyme disease – by Ixodes ticks

Plague – by fleas (Yersinia pestis)

Relapsing fever – by lice or ticks

3. Parasitic Infections

Mostly transmitted by mosquitoes and sandflies.

Malaria – by Anopheles mosquitoes (Plasmodium parasite)

Leishmaniasis – by sandflies

rypanosomiasis (Sleeping sickness) – by tsetse flies

Mild Symptoms

:

Fever

Headache

Muscle or joint pain (myalgias)

Rash

Fatigue

Severe Symptoms

:

High fever

Stiff neck

Tremors

Altered mental status (confusion, disorientation)

Seizures

Weakness or paralysis

Coma

Death

4. common arthropod borne infection.

malaria

dengue fever

zika virus

chikungunya

yellow fever

lyme disease

5. Preventing and controlling arthropod-borne diseases

involves both individual measures and broader community efforts to minimize exposure to disease vectors and reduce their populations. Individual prevention focuses on avoiding bites, while community control aims to eliminate or reduce the number of arthropod vectors.

Individual Prevention:

Avoidance: The most crucial step is to avoid areas where arthropods are active or where they are known to be abundant.

Protective Clothing: Wearing long sleeves, long pants, and even boots or hats can significantly reduce exposure to bites.

Repellents: Applying insect repellents containing DEET, picaridin, or other EPA-registered active ingredients can help deter arthropods from biting.

Community Control:

Vector Reduction: Community-wide efforts to reduce the number of arthropods, including eliminating breeding sites (standing water, garbage, etc.), using insecticides (when necessary), and other methods can significantly reduce disease transmission.

Monitoring and Early Warning Systems: Monitoring arthropod populations and disease incidence can help identify emerging risks and allow for timely intervention.

Public Education: Educating the public about the risks of arthropod-borne diseases and how to protect themselves can promote individual and community-level preventive measures.

Integrated Pest Management: Using a combination of strategies, including biological control, chemical control, and habitat management, can help effectively manage arthropod populations while minimizing environmental impact.

6. Diagnosis of arthropod borne infection.

The diagnosis involves several steps depending on the specific diseases and the patients travel history

1. Clinical Evaluation

Reviewing symptoms like fever, rash, headache, joint or muscle painAsking about recent travel to endemic areas or exposure to insects (e.g., mosquitoes, ticks)

2. Laboratory Tests

Blood Smear: Used to detect parasites like Plasmodium in malaria

Serology Tests: Detect antibodies or antigens related to viruses like dengue, chikungunya, Zika

PCR (Polymerase Chain Reaction): Identifies the genetic material (DNA or RNA) of the pathogen.

Treatment of arthropod borne infection.

Antibiotic like dexycycline and chloramphenicol treat bacterial infection like plague.

You can take some precautions to prevent vector-borne diseases: Vaccines are available to prevent vector-borne diseases like yellow fever.

Tick-Borne Diseases:

Tularemia, a bacterial disease spread by ticks, is treated with gentamicin or streptomycin.

Supportive Care and Symptom Management:

General Symptoms: Fever and body aches may be treated with medications like acetaminophen (Tylenol).

Hospitalization: Severe cases may require hospitalization for intravenous fluids and other medications to control fever and pain.