



VIRAL FAMILIES AND ASSOCIATED DISEASES

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Medical Virology-Theory and MA 403

Summer term

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Outline

- Viral families
- Viral diseases

Objectives

- Learn about different families of viruses and their disease
- Get knowledge viremia

Introduction



Viruses are classified into different families based on their

1. Genetic material
 2. Replication strategies
 3. Structure, and
 4. Other characteristics.
- Each viral family often includes viruses that share similarities in these features.
 - The International Committee on Taxonomy of Viruses (ICTV) is responsible for officially classifying and naming viruses, and they regularly update the taxonomy based on new scientific knowledge.

Herpesviridae

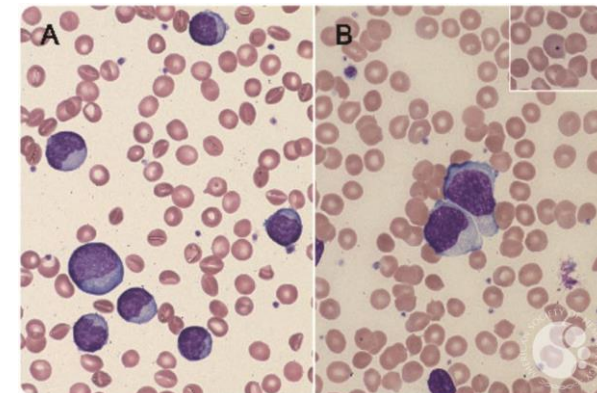


Herpesviridae includes

1. Herpes Simplex Virus (HSV): Causes oral herpes.

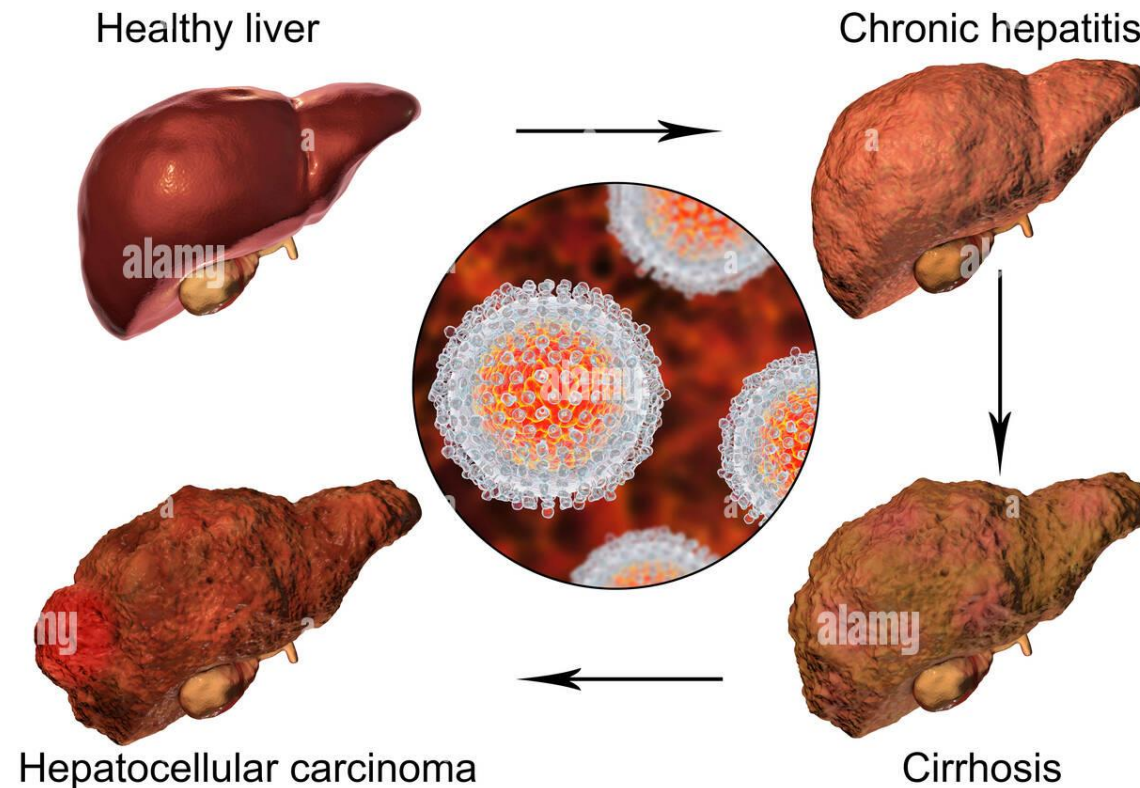


2. Epstein-Barr virus (EBV): associated with multiple types of human cancer, including lymphoid and epithelial cancers (nasopharyngeal carcinoma)



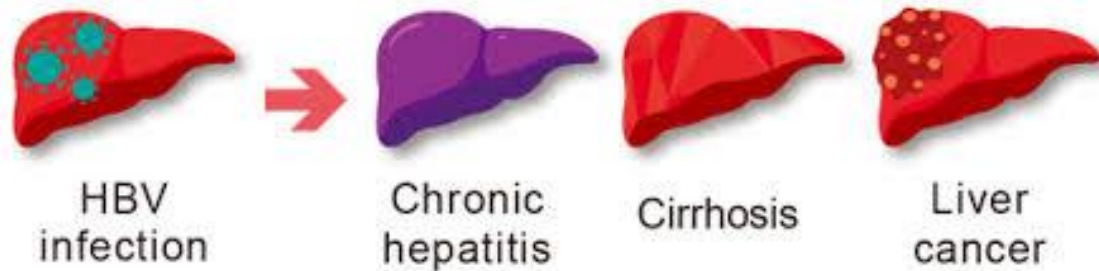
Flaviviridae

Flaviviridae includes **Hepatitis C Virus (HCV)**: causes Hepatitis C disease. Hepatitis C is a viral infection that can lead to chronic liver disease and, in some cases, cirrhosis and liver cancer.

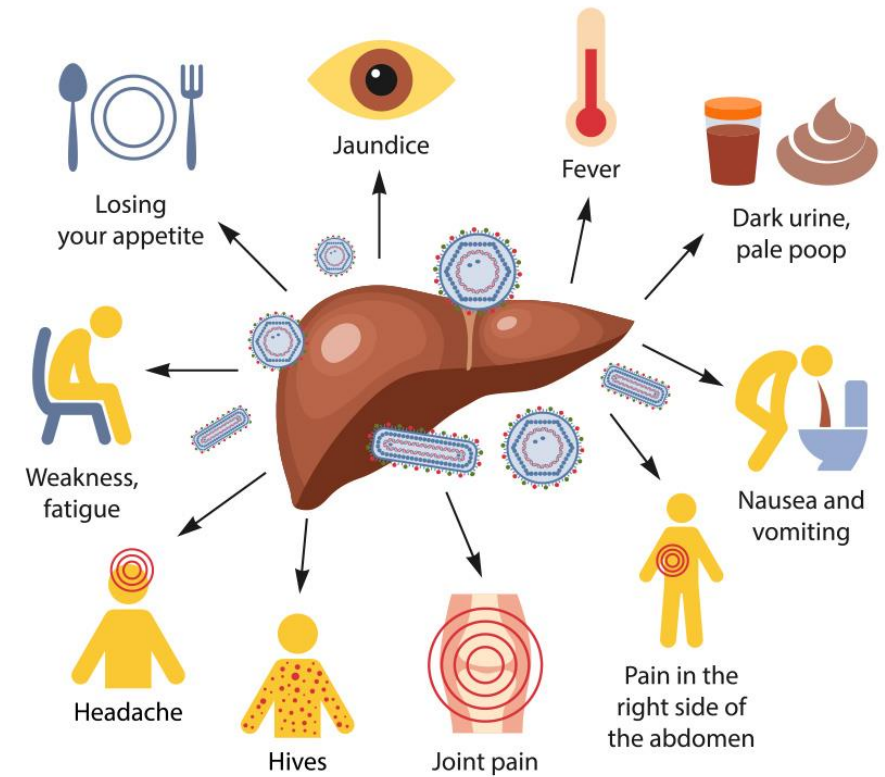


Hepadnaviridae

Hepatitis B Virus (HBV): Causes hepatitis B.

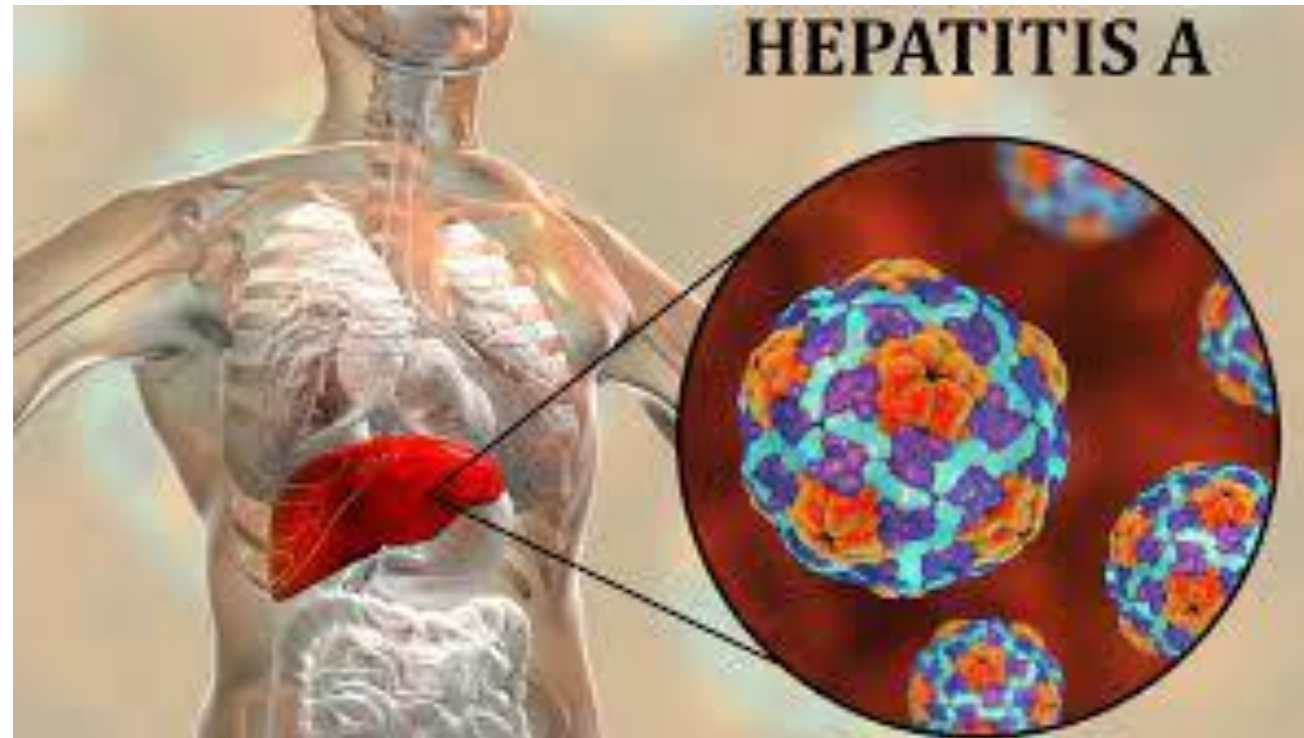


SYMPTOMS OF HEPATITIS B



Picornaviridae

Hepatitis A Virus (HAV): Causes hepatitis A.



Differences between HCV, HBV and HAV



Virus Family:

HCV: HCV belongs to the Flaviviridae family.

HBV: HBV belongs to the Hepadnaviridae family.

HAV: HAV belongs to the Picornaviridae family.

Genetic Material:

HCV: Single-stranded RNA.

HBV: double-stranded DNA.

HAV: Single-stranded RNA.

Acute and Chronic Infection:

HCV: Acute HCV infection and chronic infection will happen

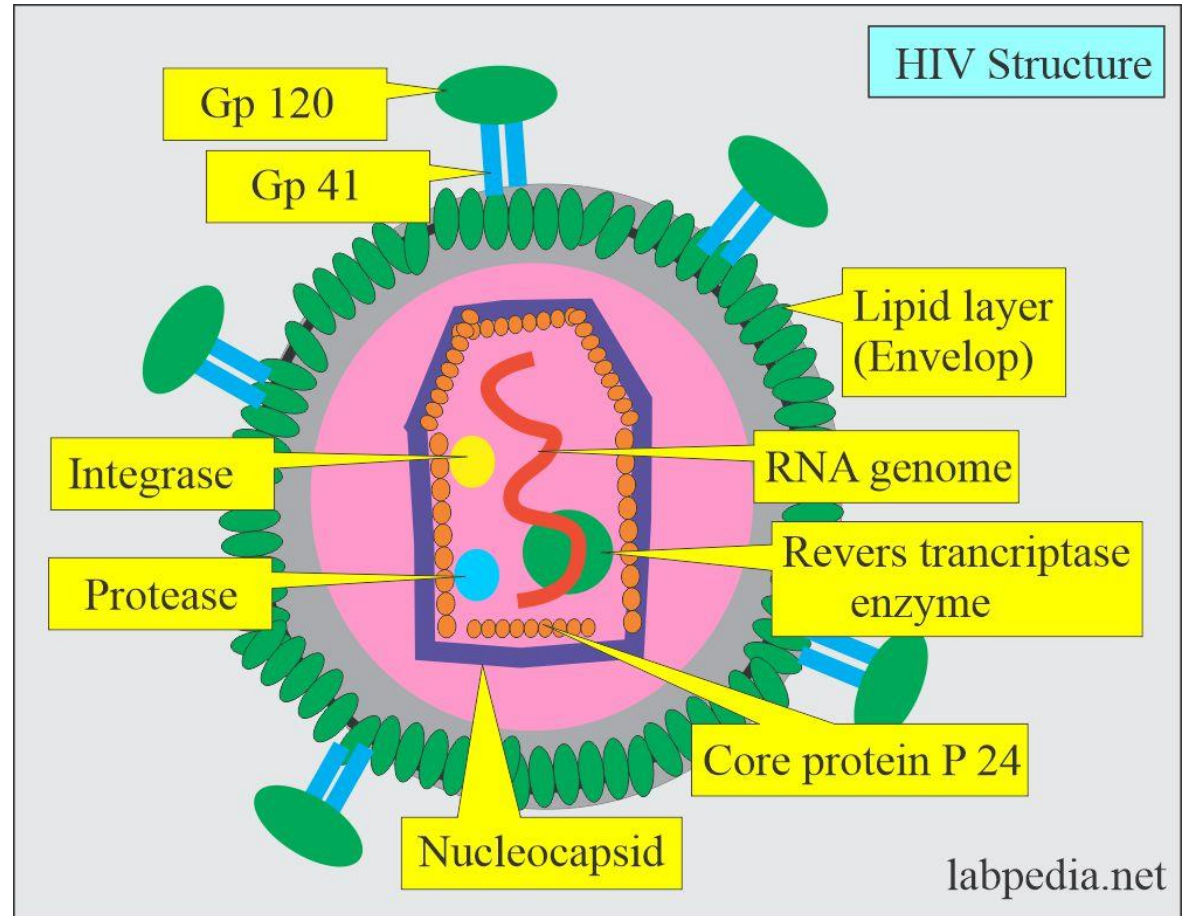
HBV: Acute HBV infection and chronic infection will happen

HAV: Typically causes acute hepatitis, and chronic infection does not occur.

Retroviridae

Human Immunodeficiency Virus (HIV): Causes Acquired Immunodeficiency Syndrome (AIDS).

What are names of enzymes and their function found in HIV?



Paramyxoviridae

Measles Virus: Causes measles.

- The rash typically starts on the face and then spreads to other parts of the body.

Measles

Rash first appears on face and neck...

...Spreading quickly to cover entire body



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Togaviridae



Rubivirus (Rubella virus): Causes rubella (German measles).

The rash typically starts on the face and then spreads to other parts of the body



Rash characteristics and fever in German measles and measles



Rash Characteristics: The rash in rubella is typically **lighter** and **less intense**. It often appears as light red spots. The rash usually starts on the face and then spreads to the trunk and limbs.

Fever: Rubella is associated with a low-grade fever.

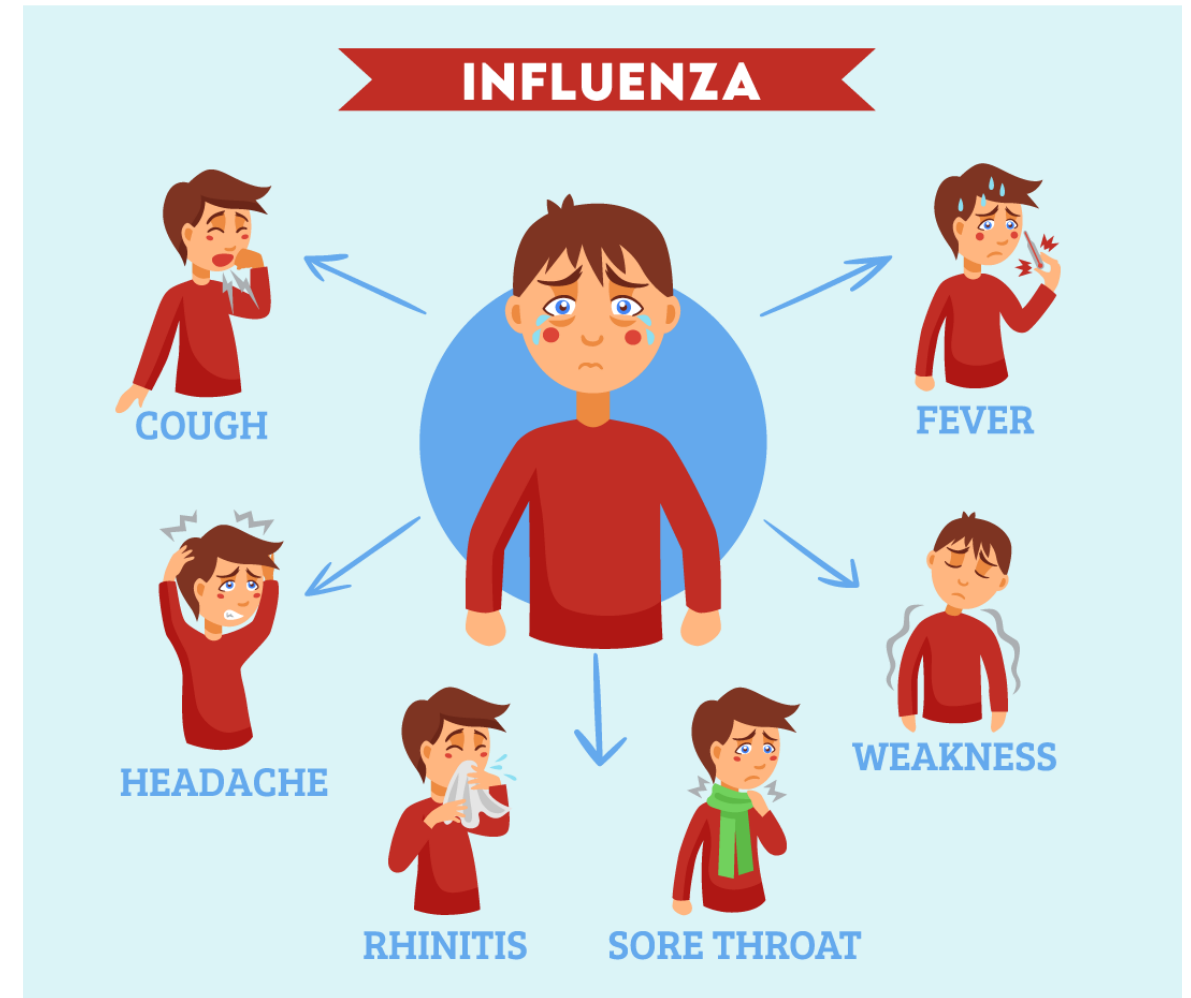
Rash Characteristics: The rash in measles is more **intense** and characterized by **larger, darker red**. The rash often starts on the face and then spreads to the trunk and limbs.

Fever: Measles is associated with a higher fever compared to rubella.

Orthomyxoviridae

Influenza Virus: Causes seasonal flu.

What are clinical symptoms of seasonal flu?



Coronaviridae



Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2): Causes COVID-19.



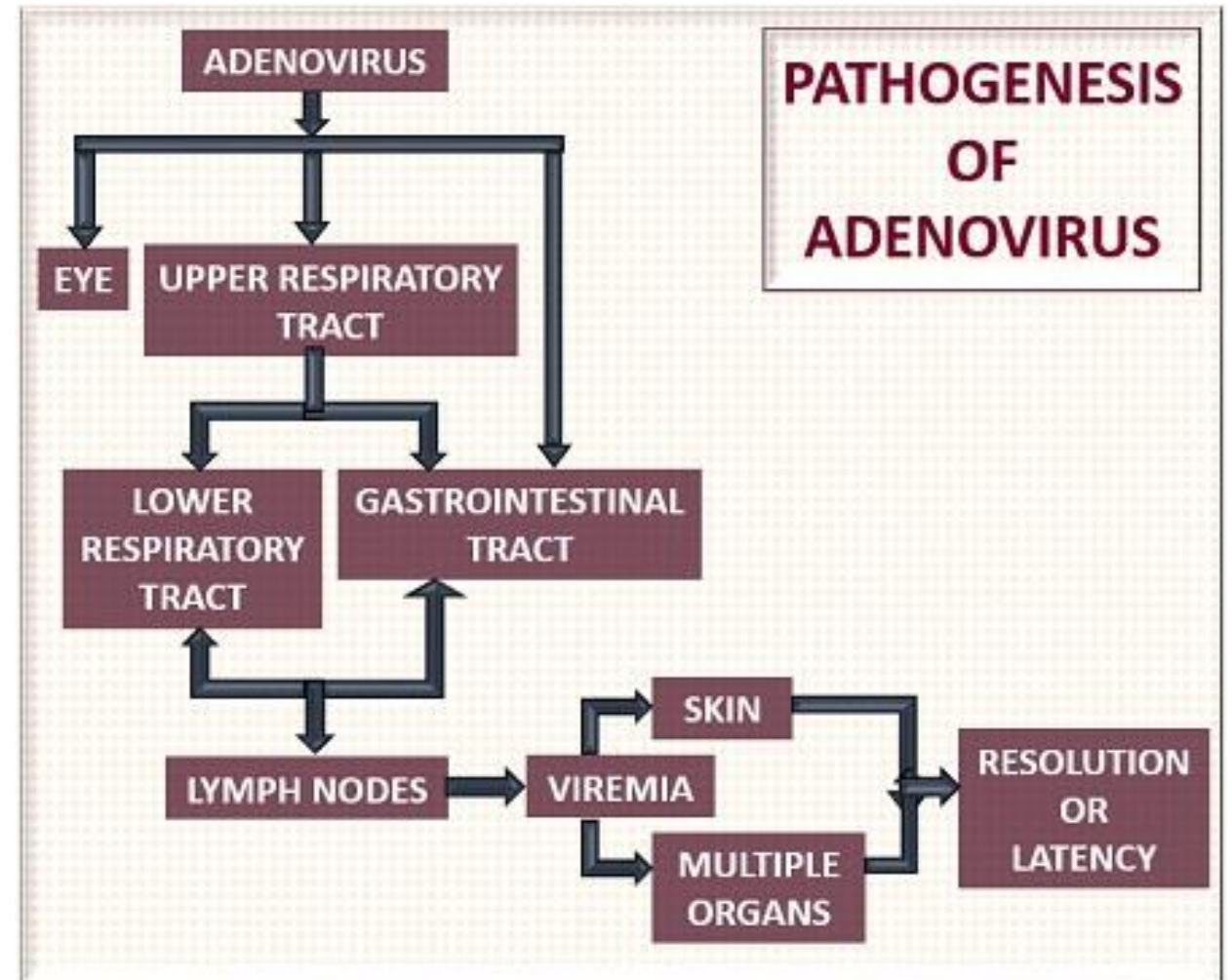
Adenoviridae

Adenovirus: Can cause

1. Respiratory infection
2. Gastrointestinal infection
3. Eye infections.

Viremia

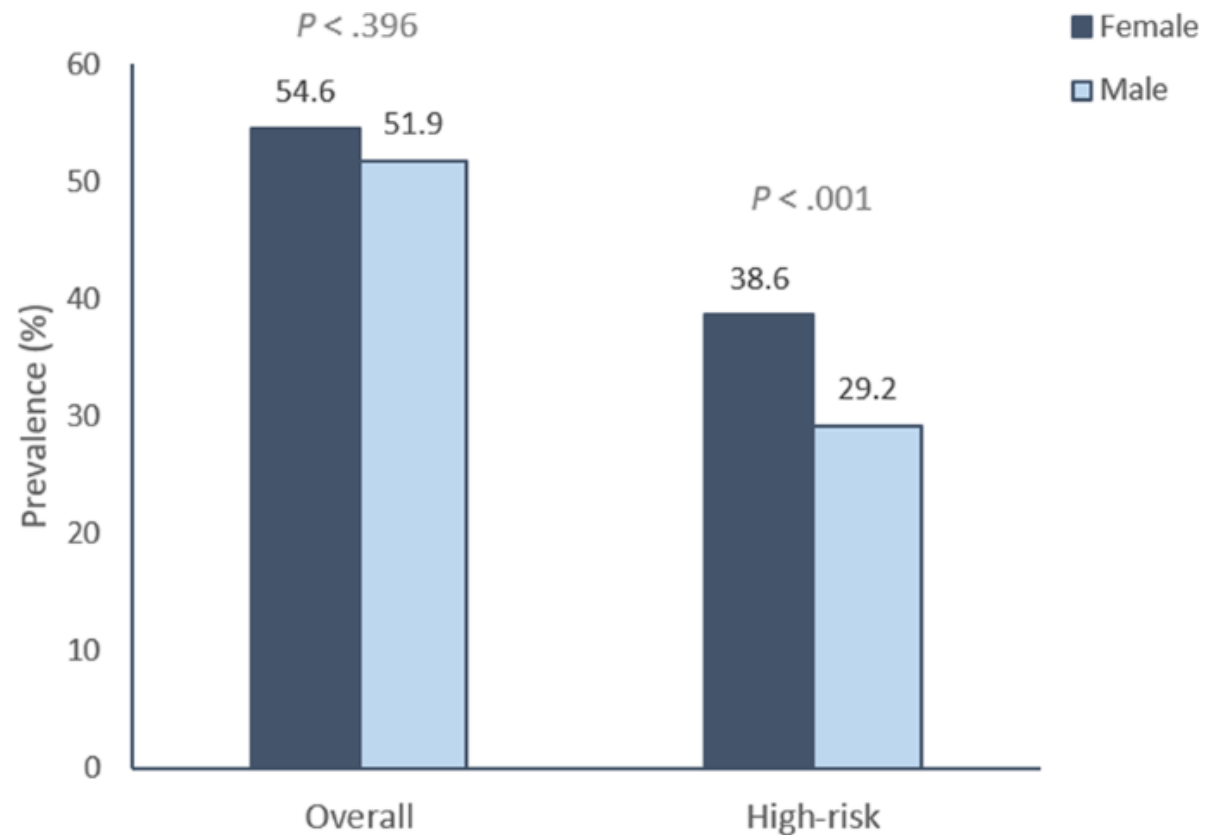
Viremia is a medical term that refers to the presence of viruses in the bloodstream. It occurs when viruses enter the bloodstream and circulate throughout the body. Viremia can be a characteristic feature of viral infections, and it plays a role in the spread of the virus to different tissues and organs.



Papillomaviridae



Human Papillomavirus (HPV): Linked to cervical cancer.



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