

ADVANCED MEDICINE

LECTURE FOUR : AUTOIMMUNE DISEASE

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Fourth Stage

المرحلة الرابعة

Lecture five

Theoretical

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An autoimmune disease is a condition that results from an anomalous response of the adaptive immune system, wherein it mistakenly targets and attacks healthy, functioning parts of the body as if they were foreign organisms. It is estimated that there are more than 80 recognized autoimmune diseases. Nearly any body part can be involved.

Autoimmune diseases are a separate class from autoinflammatory diseases. Both are characterized by an immune system malfunction which may cause similar symptoms, such as rash, swelling, or fatigue, but the cardinal cause or mechanism of the diseases is different.

Rheumatoid arthritis



Where can autoimmune diseases affect you?



Joints



Muscles



Skin



**Blood
vessels**



**Digestive
system**



Endocrine system



Nervous system

Signs and symptoms

Autoimmune diseases represent a vast and diverse category of disorders that, despite their differences, share some common symptomatic threads. These shared symptoms occur as a result of the body's immune system mistakenly attacking its own cells and tissues, causing inflammation and damage. However, due to the broad range of autoimmune diseases, the specific presentation of symptoms can significantly vary based on the type of disease, the organ systems affected, and individual factors such as age, sex, hormonal status, and environmental influences.

Symptoms that are commonly associated with autoimmune diseases include

- 1. fatigue. This is the most common complaint of people with autoimmune disease . low-grade fever**
- 2. malaise (a general feeling of discomfort or unease)**
- 3. muscle aches**
- 4. joint pain**
- 5. skin rashes**

Commonly affected areas in autoimmune diseases include blood vessels, connective tissues, joints, muscles, red blood cells, skin, and endocrine glands such as the thyroid gland and the pancreas

Types

1- Coeliac disease is an immune reaction to eating gluten, a protein found in wheat, barley, and rye. For those with the disease, eating gluten triggers an immune response in the small intestine, leading to damage on the villi, small fingerlike projections that line the small intestine and promote nutrient absorption.

2- Graves' disease is a condition characterized by development of autoantibodies to thyroid-stimulating hormone receptors.

3- Inflammatory bowel disease encompasses conditions characterized by chronic inflammation of the digestive tract, including Crohn's disease and ulcerative colitis.

4- Multiple sclerosis (MS) is a neurodegenerative disease in which the immune system attacks myelin, a protective covering of nerve fibers in the central nervous system, causing communication problems between the brain and the rest of the body.

5- Rheumatoid arthritis (RA) primarily targets the joints, causing persistent inflammation that results in joint damage and pain.

6- Psoriasis is a skin condition characterized by the rapid buildup of skin cells, leading to scaling on the skin's surface.

7- Type 1 diabetes is a condition resulting from the immune system attacking insulin-producing beta cells in the pancreas, leading to high blood sugar levels.

Causes

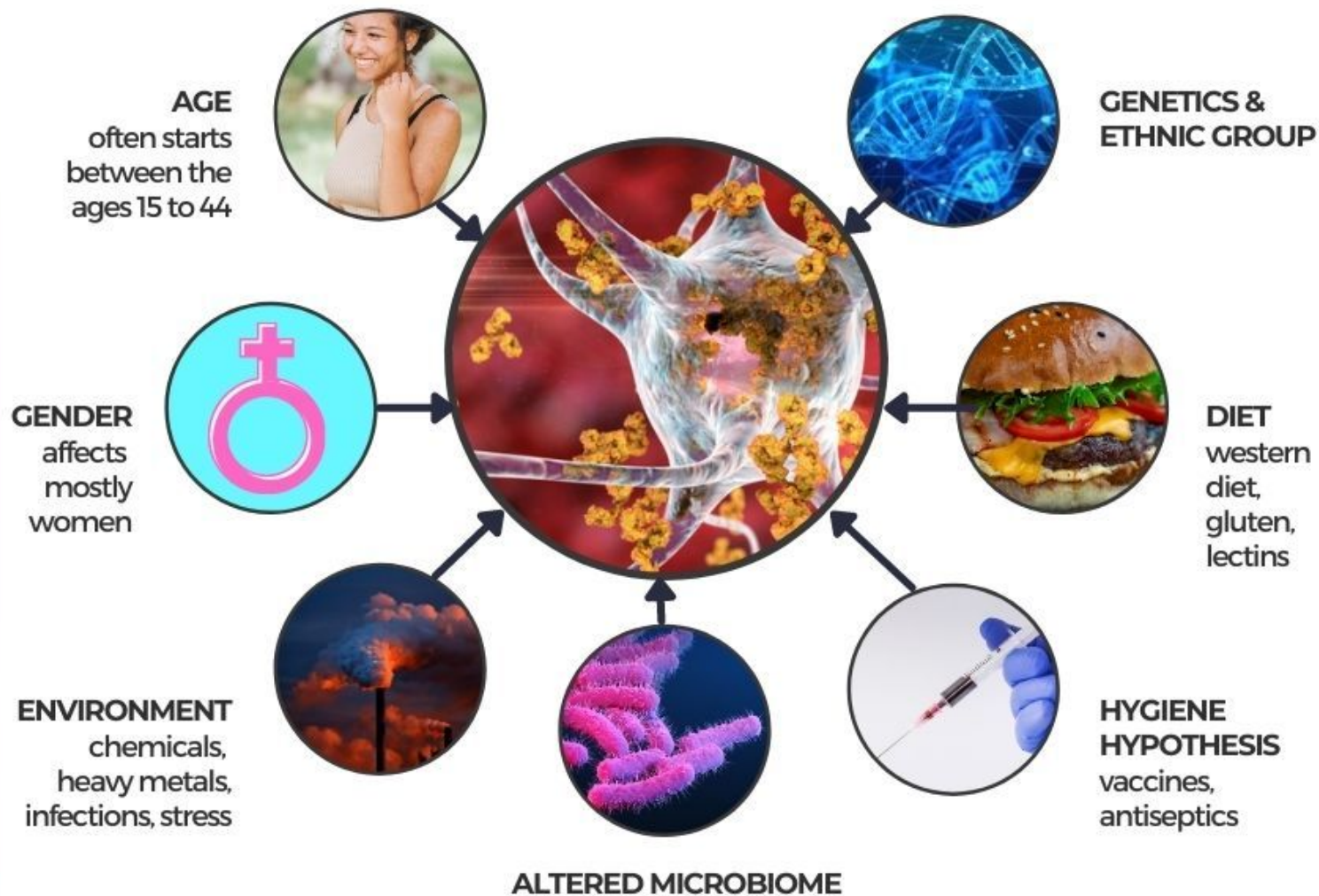
The exact causes of autoimmune diseases remain largely unknown however, research has suggested that a combination of genetic, environmental, and hormonal factors, as well as certain infections, may contribute to the development of these disorders.

Genetics

A familial tendency to develop autoimmune diseases suggests a genetic component. Some conditions, like lupus and multiple sclerosis, often occur in several members of the same family, indicating a potential hereditary link. Additionally, certain genes have been identified that increase the risk of developing specific autoimmune diseases.

AUTOIMMUNE DISEASES

POSSIBLE CAUSES & RISK FACTORS



Diagnosis

Medical history and examination

Laboratory tests

1- Autoantibody testing

2- Complete Blood Count

3- C-Reactive Protein and Erythrocyte Sedimentation Rate

4- Organ-specific tests

Imaging studies

Differential diagnosis

Multidisciplinary approach

Treatment

Treatment depends on the type and severity of the condition. The majority of the autoimmune diseases are chronic and there is no definitive cure, but symptoms can be alleviated and controlled with treatment. Standard treatment methods include:

- **Vitamin or hormone supplements for what the body is lacking due to the disease (insulin, vitamin B12, thyroid hormone, etc.)**
- **Blood transfusions if the disease is blood related**
- **Physical therapy if the disease impacts bones, joints, or muscles**

Pharmaceutical treatment options include immunosuppressant drugs to reduce the immune response against the body's own tissues, such as:

- 1. Non-steroidal anti-inflammatory drugs (NSAIDs) to reduce inflammation**
- 2. Glucocorticoids to reduce inflammation**
- 3. Disease-modifying anti-rheumatic drugs (DMARDs) to decrease the damaging tissue and organ effects of the inflammatory autoimmune response**

QUIZ



What is the causes of autoimmune diseases ?

Any questions?

*Thank
You*