## **Consequences of Inflammation**

SGD 3<sup>RD</sup> YEAR MBBS

Foundation module

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# Motto of RMU





### Vision of RMU The Dream/ Tomorrow

- To impart evidence based research oriented medical education
- To provide best possible patient care
- To inculcate the values of mutual respect and ethical practice of

medicine



# Prof Umar's LGIS model



### **Learning Objectives**



Understand the nature of inflammation

Identify the potential outcomes of acute inflammation

**Explore the consequences of chronic inflammation** 

**Recognize the association of chronic inflammation with specific diseases** 



# **Study Questions**

What is inflammation?What is acute inflammation?What is chronic inflammation?What are the outcomes of acute inflammation?What r the consequences of chronic inflammation?

Inflammation is a protective response intended to eliminate the initial cause of cell injury as well as the necrotic cells and tissues resulting from original insult

Although inflammation helps to clear infection and other noxious stimuli and initiates repair the inflammatory reaction and subsequent repair process can cause considerable harm

### **Types of Inflammation**

Inflammation is divided into acute and chronic patterns

### **Acute Inflammation**

 $\succ$ It is initial and often transient series of tissue reactions to injury.

> It is relatively of short duration, lasting for minutes, several hours or a few days.

> Its main characteristics are the exudation of fluid and plasma proteins (edema) and the emigration of leucocytes, predominantly neutrophils.

### **Chronic Inflammation**

 $\succ$ It the subsequent and often prolonged tissue reactions following the initial response.

 $\succ$ It is of longer duration.

≻Histologically it is associated with presence of lymphocytes and macrophages, the proliferation of blood vessels, fibrosis and tissue necrosis





### **Acute Inflammation Outcomes**

**Complete Resolution** 

Ideal outcome when injury is limited or shortlived. Healing by Fibrosis

Occurs after substantial tissue destruction.

#### Progression to Chronic Inflammation

Occurs when acute inflammatory response cannot be resolved.

### **Chronic Inflammation Consequences**

#### **Tissue Destruction**

Persistent inflammatory cells can cause ongoing tissue damage.

**Fibrosis** Excessive deposition of collagen and other extracellular matrix proteins.

#### **Systemic Effects**

Prolonged inflammation can lead to systemic complications.





### **Cardiovascular Disease**

#### Atherosclerotic Plaque Formation

Chronic inflammation is involved in atherosclerotic plaque formation.

#### **Monocyte Recruitment**

Inflammatory signals attract monocytes to the vascular wall.

#### **Plaque Progression**

Promotes smooth muscle cell proliferation and plaque progression.



### Cancer



#### **Tumor Growth**

Inflammatory cells can promote tumor growth.

#### Angiogenesis

Inflammatory cells can promote blood vessel formation in tumors.

### **Autoimmune Diseases**

### Q



Rheumatoid Arthritis Lupus

Psoriasis



### **Family Medicine**

Prolonged inflammation can lead to tissue damage, fibrosis, and increased risk of chronic diseases like heart disease and diabetes.

Management includes medications (NSAIDs, corticosteroids), lifestyle changes (diet, exercise), and patient education on triggers and regular follow-ups.



### References

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