



النادي
MC
الطبي

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♥ لا تنسونا من دعائكم بالتوفيق ♥

بلعجة

2. ENGULFMENT

Phagocyte membrane
zips up around
microbe

نقل بعقد

= receptor
mediated
endocytosis

اجبا

لسؤال

سنوات

هالاصطلاح

Phagosome
ected

Q. What is the first response in acute inflammation?
Ans: Homeostasis.



4- Membranous or pseudomembranous inflammation :

Pseudomembrane → افشاء الكاذب

This is a form of inflammatory reaction that is characterized by the formation of a membrane or more correctly a pseudo-membrane .

It is usually made up of precipitated fibrin, necrotic epithelium & inflammatory leukocytes.

When does

This occurs when the inflammation is so severe as to cause epithelial necrosis and sloughing.

An example of this pattern is seen with Diphtheria affecting the larynx & pharynx.

بالقولنج

It may also affect the large bowel causing pseudomembranous colitis . The latter is caused by Clostridium difficile infection

مسبب الالتهاب

In this type of inflammation there is an extensive confluent necrosis of the surface epithelium or mucosa & sever inflammation of the underlying tissue .

تجمع هائل

Q: The hallmark of the cellular response in acute inflammation is

الجواب: neutrophils

Q: The hallmark of acute inflammation

الجواب: neutrophils نيوٹروفیلز

The substances that cause chemotaxis are called **chemotactic agents**, these include substances such as

- ① Soluble bacterial products.
- ② Components of complement system such as, **C5a**.
- ③ Products of **lipxygenase pathway** of arachidonic acid metabolism particularly **leukotrien B₄ (LTB₄)**.
- ④ Cytokines of the chemokine family .

The chemotactic agents **bind to specific receptors on leukocyte cell surface** & induce an **intra cellular cascade of phospholipids metabolites** associated with **increased intra cellular calcium**, which **triggers the assembly of cytoskeletal contractile elements necessary for cell movements**.

لا تتركه حتى يذهب الى النوم
مع لياقة

الماتلغ
دوم الماتلغ
macrophages
Q
they kills the pathogens by releasing of their enzymes like HOCL
neutrophils & eosinophilic granules
Inflammation → macrophages
The type of WBCs seen in inflammatory response varies with the nature & severity of the injury or stimulus and the age of the inflammatory lesion .
In most types of acute inflammation neutrophils predominate in the first 6-24 hours , to be replaced by monocytes within 24-48 hours .
In hypersensitivity reaction eosinophils are the main cell type.
engulfing, digesting and killing microorganism & cells setting healing & repairing
phagocytosis

The cardinal signs of acute inflammation

(Celsus 30 B.C.)

حفظ المصطلحات

* Heat (Calor) من كالوري

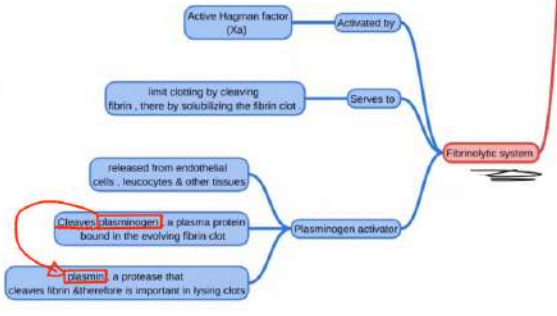
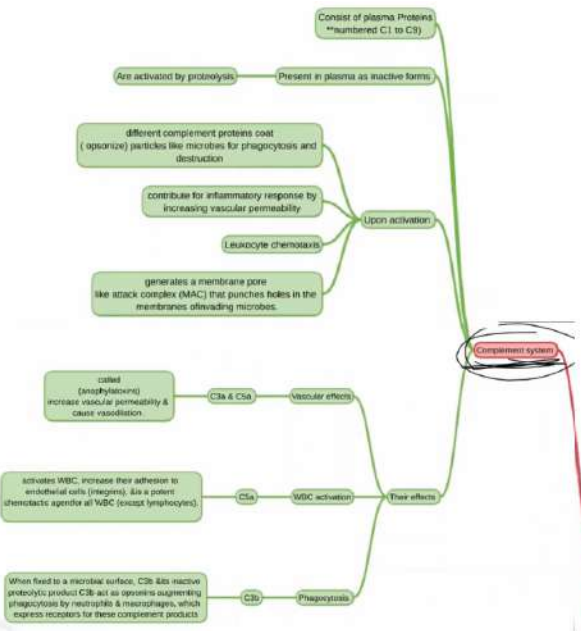
* Redness (Rubor)

* Swelling (Tumor) تورم

* Pain (Dolor)

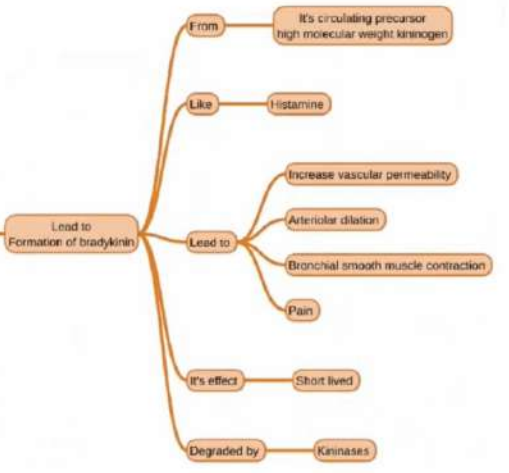
* Loss of function (Functio laesa)



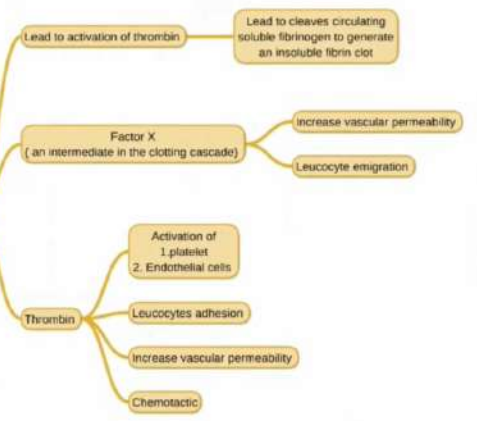


Mediators derived from plasma

Kinin system activation



Clotting system activation



With some exceptions as

- ✦ pneumonia for inflammation of the lung,
- ✦ pleurisy for inflammation of the pleura.
- ✦ Bladder-cystitis,
- ✦ Liver-Hepatitis,, ✦ Ovary-Oopheritis .
- ✦ Skin-Dermatitis, ✦ Testis-Orchitis etc.



Types of mediators

They are divided into two major categories :

I-Mediators that are derived from the plasma :

including :

4 System ----- synthesised in liver (inactive form)

- The kinin system.
- The complement system.
- The coagulation & fibrinolytic system.

II. Mediators released from cells :

Either :

inflammation من قبل حدوث ال

مخزونات في الخلية

A- Preformed mediators in secretory granules of cells. like :

- Histamine secreted by mast cells , basophils & plateletes.
- Serotonin secreted by platelets.
- Lysosomal enzymes secreted by neutrophils & macrophages.



6

B- Newly synthesized mediators : يتم تصنيعها لحظياً عند الحاجة

Prostaglandins Leukotriens

Platelets activating factors → activate platelets → Plug

Reactive oxygen species Nitric oxide

Cytokines Neuropeptides

Produce histamin ...etc

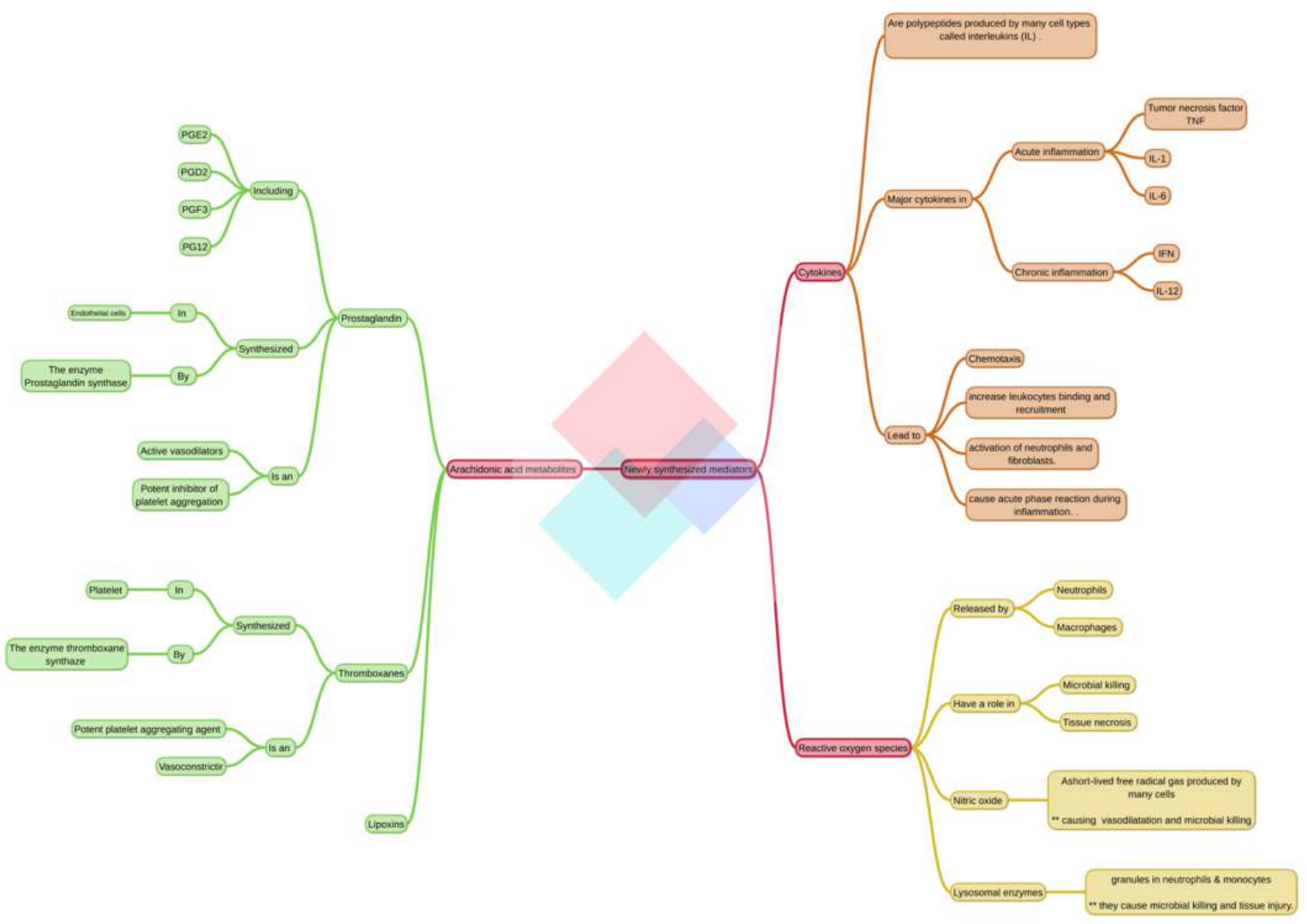
تحفز انتاجهم

ال macrophages بتطلع cytokines يلي رح تعمل activation ل B,T cells
وكمانه بتكده الكثيراً عنانه ال (T-cells) تقبلها



Macrophages, scattered diffusely in most connective tissues normally, but found in increased numbers in certain organs: Liver (Kupffer cells), CNS (microglial cells), Lungs (alveolar ^{هياكل هوائية} macrophages), Spleen & lymph nodes (sinus histiocytes) , or called dendritic cells..

مخمس
للكتيوز



What is the first be lost when the cell expose to the injury?

It is the cellular function

MECHANISMS OF CELL INJURY:

(1) **The cellular response to injurious stimuli depends on:**

A. - Type of injury,

B. - Duration of injury → كلما زادت كلما كانت irreversible

C. Severity of Injury

D. Type of injured cell → نفع الخلية اي اجزا عليها المسبب

Cell injury هو ال

reversible irreversible الالساو

اجا عليها سمات

except

وكان معطوط هذول

الاع جيلان وضيار خاص ما الاله علاوقه
فما لضيار الرابع يعتبر من صفاتهم

cause
بم العدة وكل ما كانت اطول
النتائج
تكون
الاسود

Serous inflammation

- Effusion
- from blood
- mesothelial cells of pleura, pericardium or synovial cells in joints.
- like in TB infection.
- And skin blisters in burns or viral infection.

Suppurative inflammation

- Production of pus.
- infection with staphylococci.
- like skin pustule.
- massive infiltration of neutrophils.
- may form abscess.

Fibrinous inflammation

- Extensive fibrin exudate.
- in severe response.
- Bread and butter
- Eosinophilic meshwork in body cavities & meninges.
- Resolution by fibrinolysis.
- organization

Pseudomembraneous inflammation.

- Formation of a structure that resembles a membrane.
- from fibrin, necrotic tissue & leukocytes.
- When the inflammation is too severe.
- Diphtheria affecting larynx & pharynx.
- Clostridium difficile affecting large bowel.



OMAR AQEL