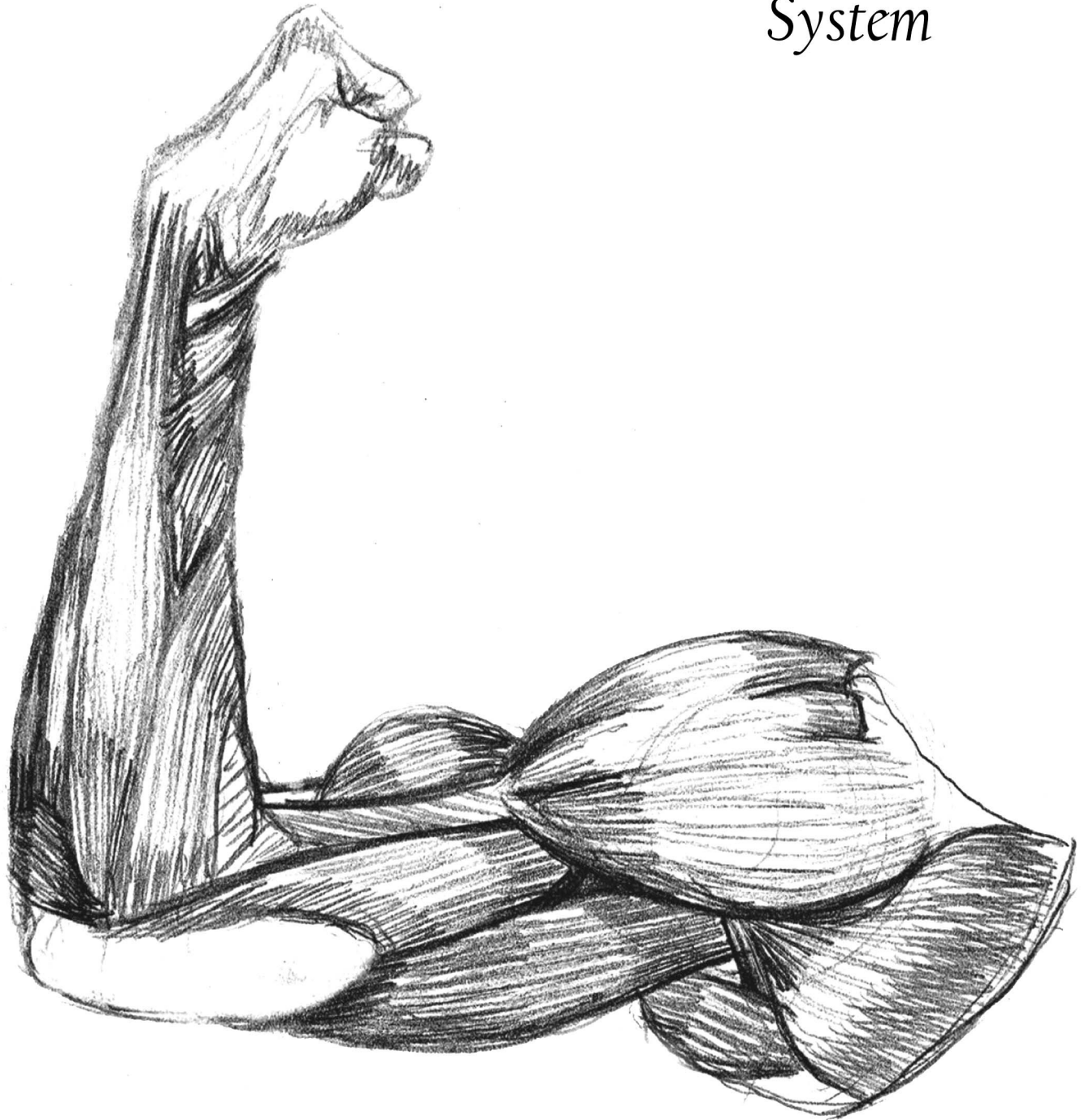




Medical Committee
The University of Jordan

The Skin and
MUSCULOSKELETAL
System



PHARMACOLOGY

SLIDES

SHEET

SLIDE: 1

DOCTOR: **Omar shaheen**

Anti Inflammatory Drugs

Injury = → Cause inflammation:

↓
Natural response to injury
↓
protective response
↓

Types of inflammation:

I - Exogenous = caused by outside factors:

- a - physical
- b - chemical (acids, bases etc)
- c - microbial

II - Endogenous =

↓
inappropriate activation
of immune system.

e.g. Rheumatoid arthritis.

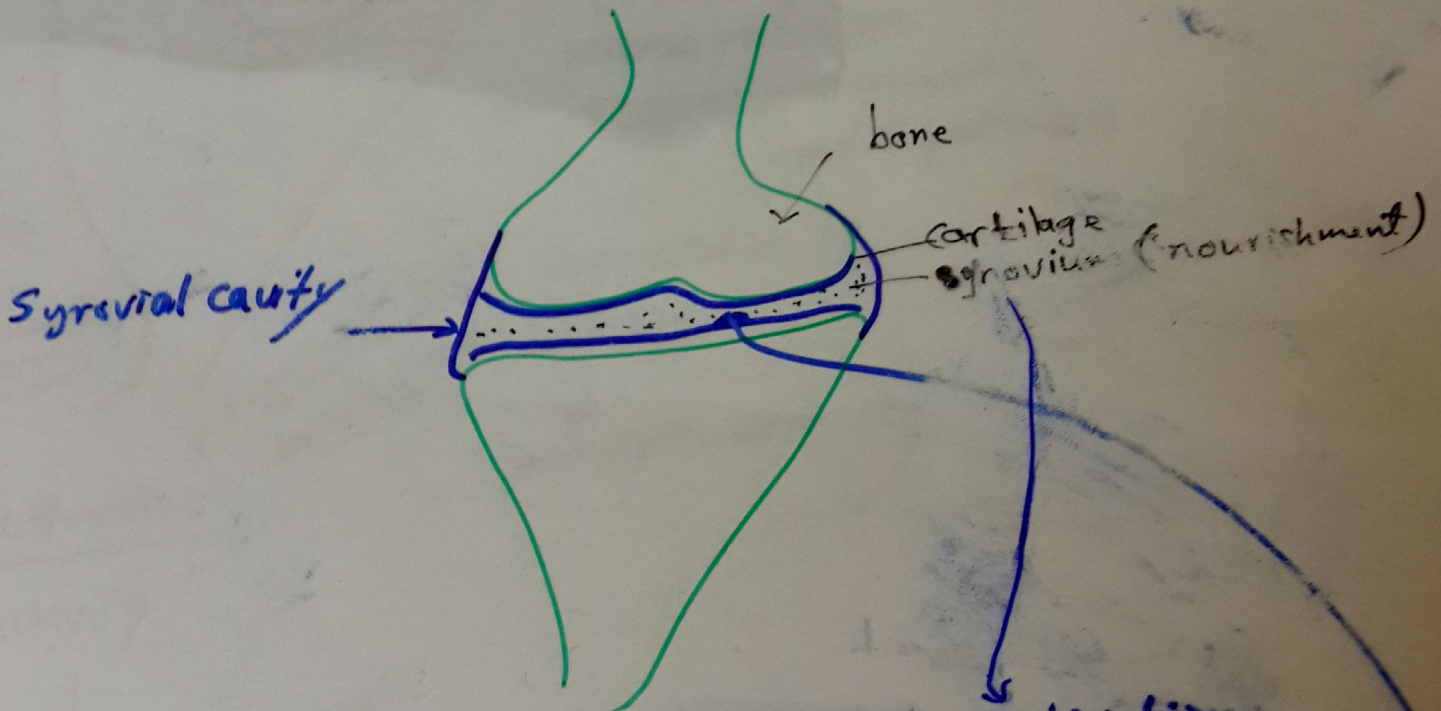
Characteristics :

- pain, fever etc. → palliative
- tissue repair. → healing
- destroy invading organism
- functional disability = stop or delay inflammatory process (slowing) inflammatory process.

Inflammation

healing : → complete → inflammatory process subside
immune system can differentiate non-self from injury
→ inflammation progress → pain continue
→ disability continue
immune system can't differentiate self-
and nonself - injury →

- Rheumatoid arthritis :-



Inflammatory attack: WBC activation

B-lymphocytes

T-lymphocytes (immune system mediator)

→ rheumatoid factor (inflammatory marker)

↓ monocytes + macrophages

autoantibodies → maintain

↓ secrete proinflammatory cytokines (tumor necrosis factor - interleukin)

inflammation

↓ progressive tissue injury!

Effects of cytokines

(3)

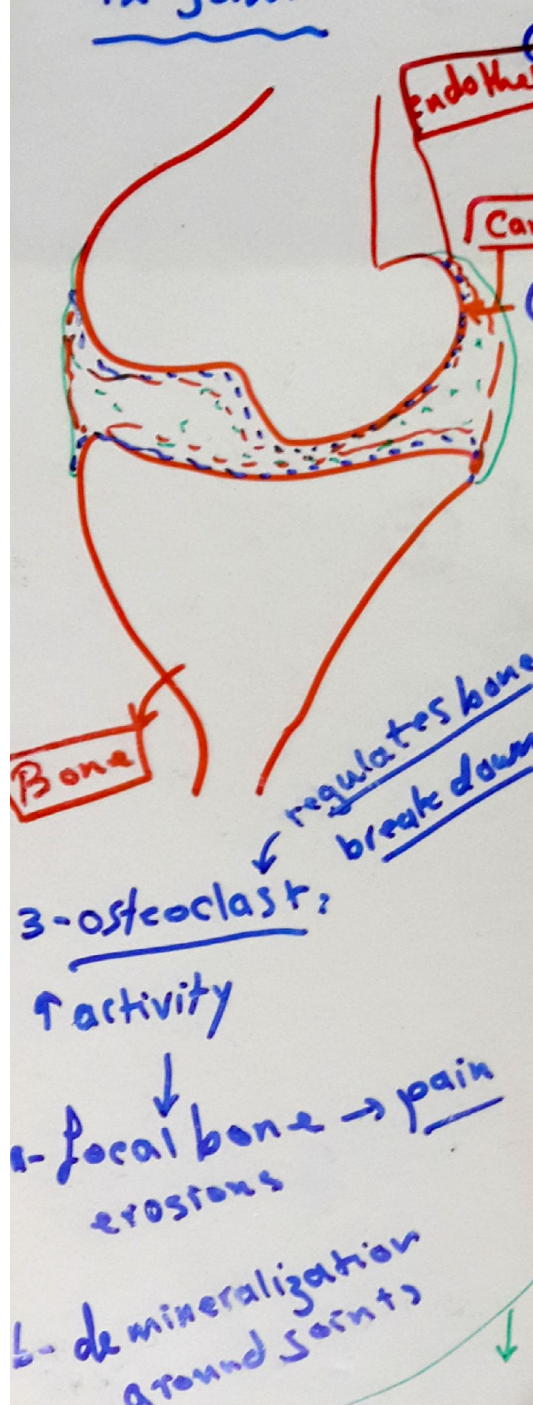
local effects in joints

release of histamine + kinins + prostaglandins

systemic effects

systemic manifestations

side effects



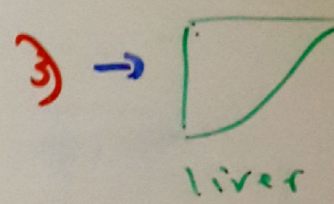
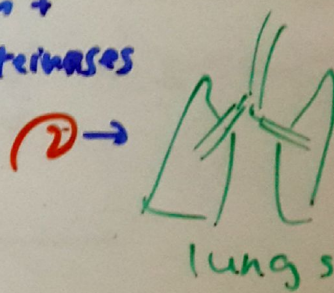
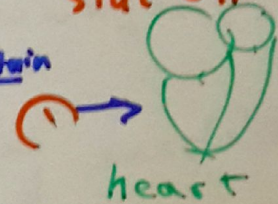
① endothelial cell infiltration

② chondrocytes: cells that maintain cartilage

↑ production of ~~proteases~~ proteolytic enzymes - collagenases + metalloproteinases

↓ degeneration of cartilage

↓ joint space narrowing



↑ activity

1- local bone → pain erosions

2- demineralization around joints

- joint damage → pain

- joint erosions → disability

decrease quality of life.

Blood sample

Chondrocytes

C-reactive proteins production → release marker of inflammation

release of proteolytic enzymes.

↓

- collagenase
- metalloproteinase

pharmacological interference

(14)

objective = ① reduce, modulate inflammatory process
② by - antiinflammatory - agents
reduce or modulate inflammatory agents
process → by →
→ immunosuppressive - agents

③ analgesics: elevate of moderate pain

③ halting or at least slowing
the progression of disease

Anti-inflammatory

الادوية المضادة للالتهاب

- Salicylates
- paracetamol
- Non-selective COX inhibitor NSAIDs
 - Azapropazone
 - Diclofenac
 - Eto dolac
 - Fenbuten
 - Fenoprofen
 - flubiprofen
 - Ibu profen
 - Ketoprofen
 - Meloxicam
 - Nabmetone
 - Naproxen
 - piroxicam
 - Salindac
- Selective COX₂ inhibitor NSAIDs
 - Celecoxib (celebrex)
 - rofecoxib (vioxx)

Drugs for arthritis

- Abatacept
- Adalimumab
- Anakinra
- Chloroquine
- Etanercept
- Gold salts
- Infliximab
- leflunomide
- Methotrexate
- D - Penicillamine
- Rituximab

Drugs for Gout

- Allopurinol
- Colchicine
- Probenecid
- Sulfapyrazone

Prostaglandins

-6-

The + effects → mechanism of action } of NSAIDs
2- side effects -

can be explained and understood through their inhibitory action of synthesis of prostaglandins synthesis.

Prostaglandins =

Structure: 20 Carbon atoms in their structure
= Eicosanoids - Eicosa = 20 carbons
in their atom
→ cyclic ring structure.

belong to a group of compounds called:

Autacoids: "pharmacologically active" compounds

Characteristics:

- a- formed locally by the tissues
- b- act locally in these tissues (local hormones)

- c- produced by many tissues

(differ from hormones that produced by specific organs)

- d- rapidly metabolized to inactive products
- e- don't circulate in the body/at site