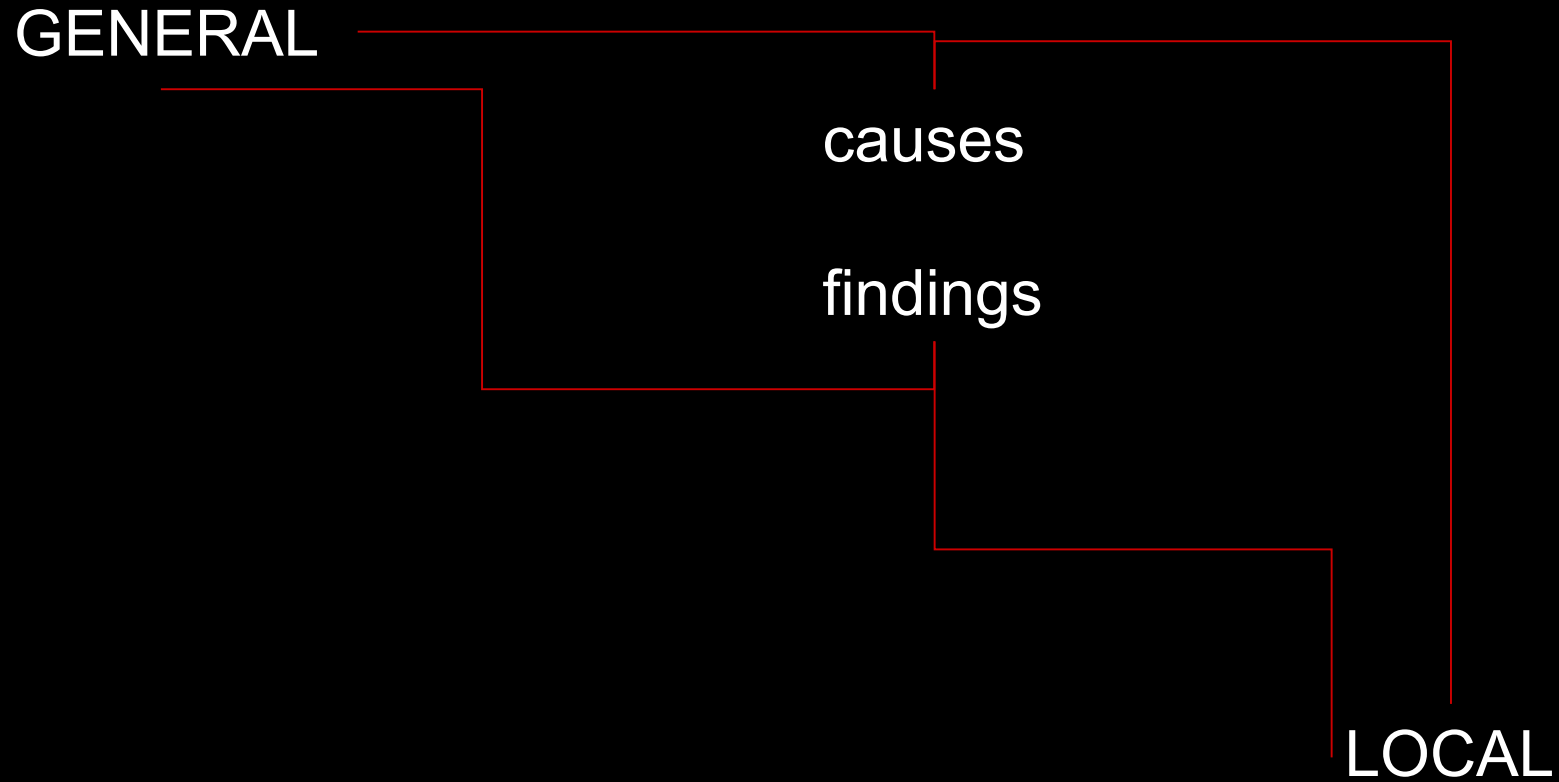


Disturbances of the blood flow – circulatory failure



Disturbances of the blood flow – overall / general

the circulation – dynamic system, adaptable

functionally / structurally

overstepping the adaptability \Rightarrow a failure

failure \Rightarrow imbalance between

- function of the heart

- function of the vessels

x

demands on the circulatory system

changes

- regulatory

- structural / morphological

Manifestation of the circulatory failure / insufficiency

in the heart



dilatation

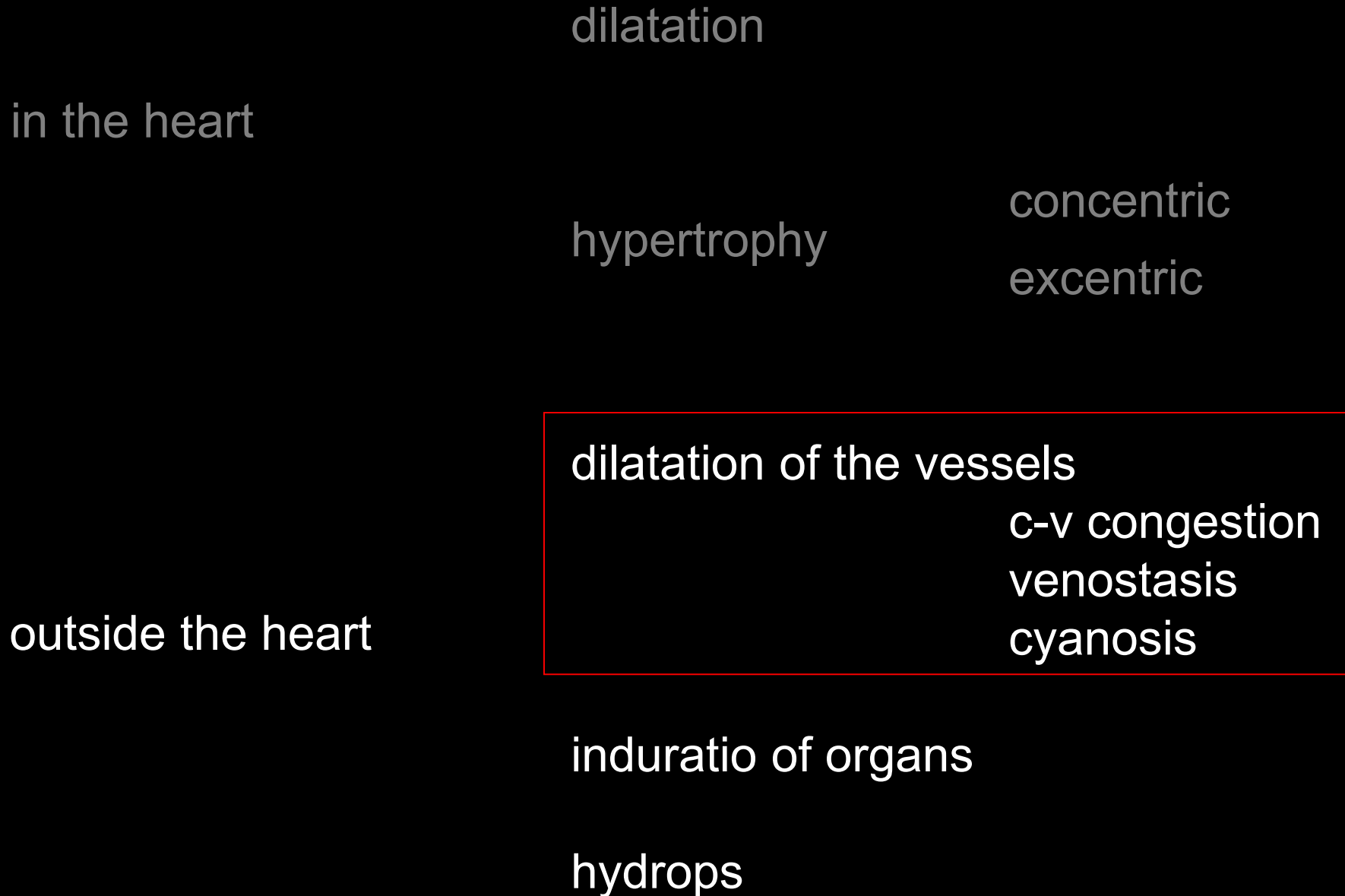
hypertrophy

concentric
excentric

cor hypertonicum
cor bilaterale translatum → *cor bovinum*
cor pulmonale

outside the heart

Manifestation of the circulatory failure / insufficiency

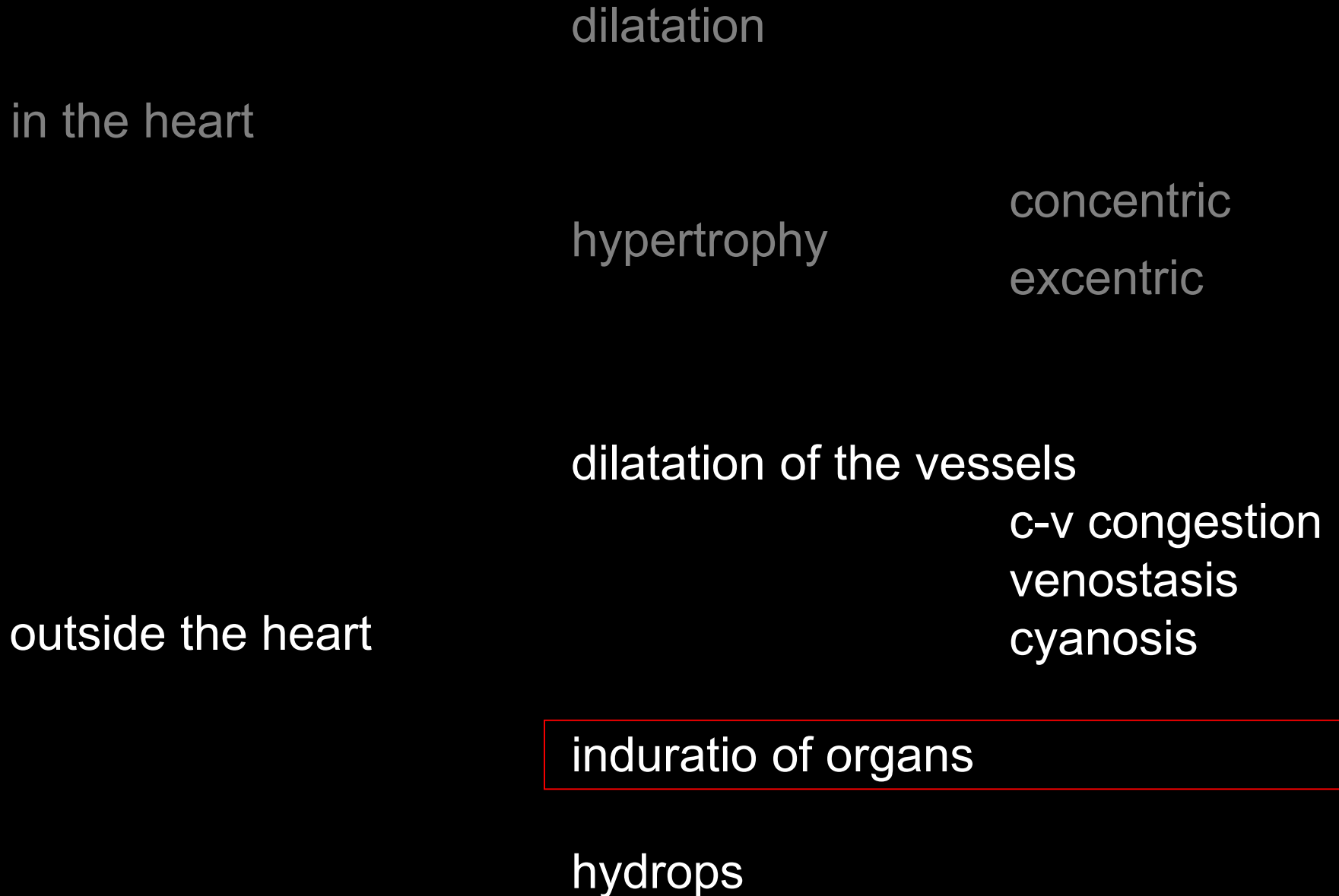


Blood flow in the capillaries and exchange of the tissue fluids

Lung edema

Cyanosis

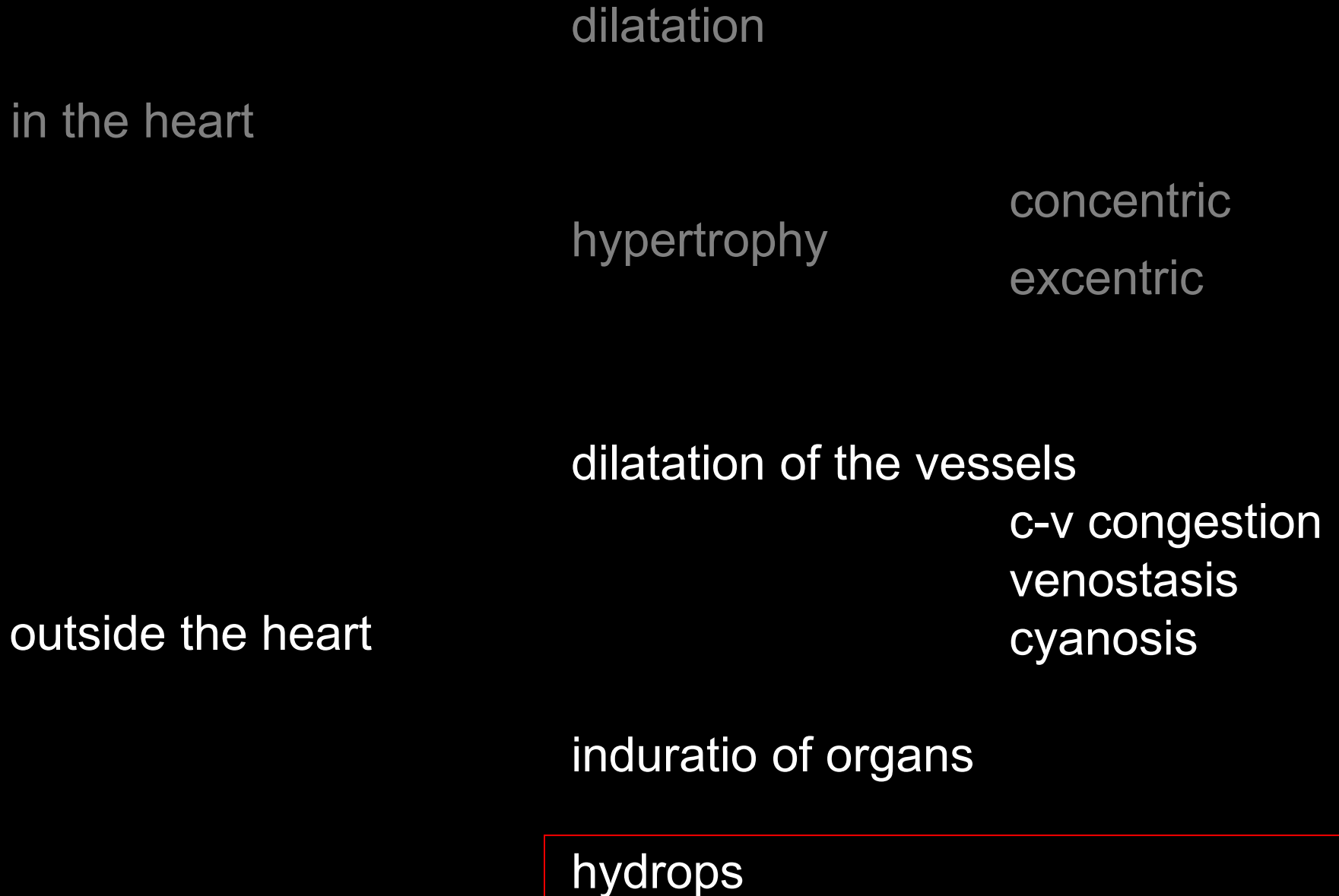
Manifestation of the circulatory failure / insufficiency



Cyanotic induration

Brown / rusty induration of the lungs

Manifestation of the circulatory failure / insufficiency



Causes of the circulatory insufficiency

in the heart

congenital
acquired

endokardium

myokardium

perikardium

structural

regulatory

2 – 3 % of adults!
up to the 5.th decade rare
in 60 – 70 year-old 55% - 75%

30% to 50% 5y survival!

70% ICHS

hypertension

alcohol, drugs

arrhythmia

pathology of the valves

congenital malformations

cardiomyopathies

inflammations, DM, obesity

Causes of the circulatory insufficiency

- changes of the blood pressure

outside the heart

hypertension in the pulmonary circulation
in the systemic circulation

hypotension

- changes in the blood volume and its composition

Causes of the circulatory insufficiency

- changes of the blood pressure

outside the heart

hypertension in the pulmonary circulation

- acute
- chronic

Causes of the circulatory insufficiency

- changes of the blood pressure

outside the heart

hypertension in the pulmonary circulation

- acute

- chronic

hypertension in the systemic circulation

- **essential / primary**
- secondary
 - renal*
 - hormonal*
 - neurological / mental - psychological*

Causes of the circulatory insufficiency

- changes of the blood pressure

outside the heart

hypertension in the pulmonary circulation

- acute
- chronic

hypertension in the systemic circulation

in the changes of the blood

- volume
- composition

- hyperhydration
- dehydration
- plethora
- anemia

Disturbances of the blood flow – local

causes

thrombosis

embolism

metastasis

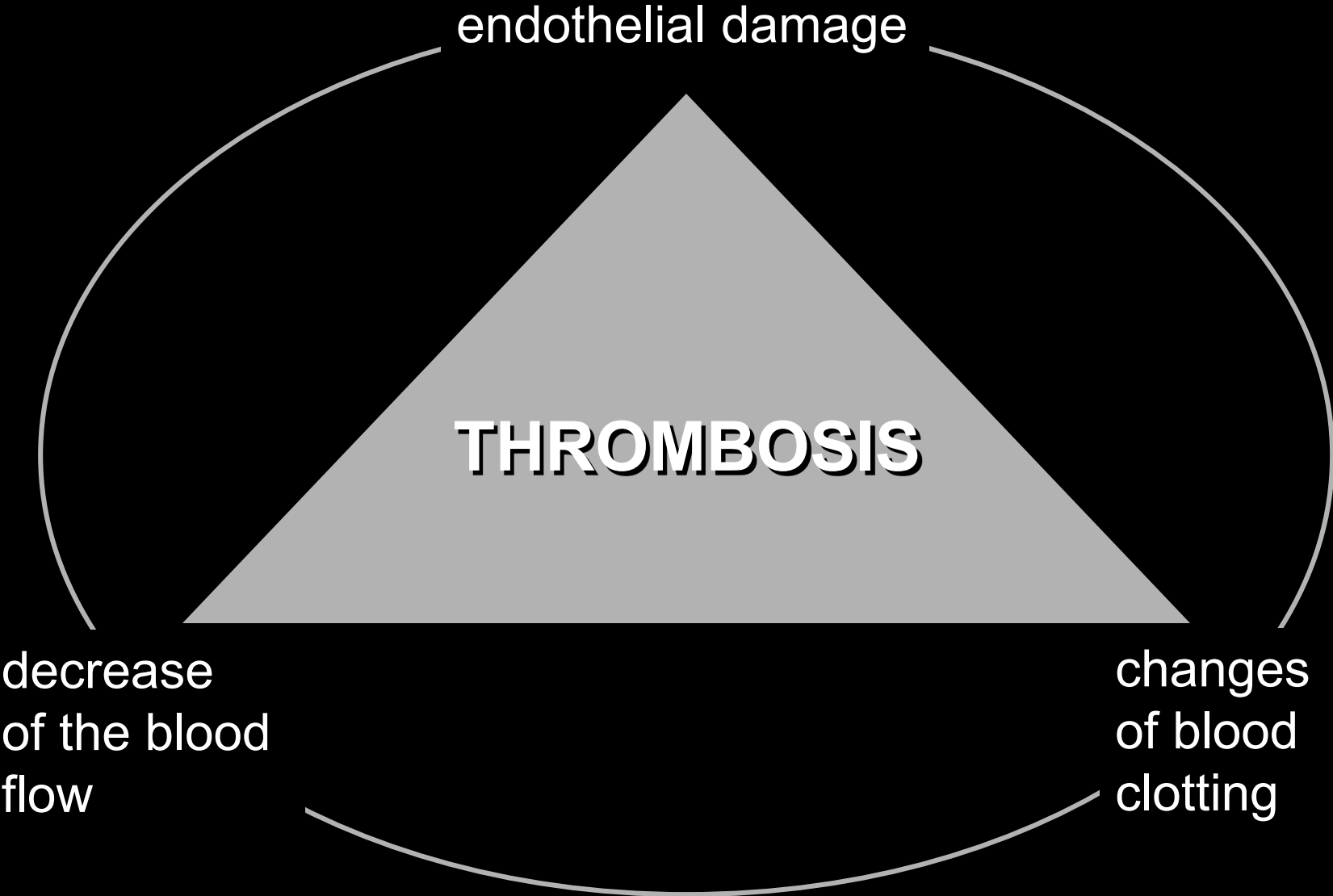
manifestation

hyperemia (local)

anemia – ischemia (local)

hemorrhage

Thrombosis / Virchows trias



Thrombosis / types of thrombi

red / stagnation / venous

Thrombosis / types of thrombi

red / stagnation / venous

white / flux related

Thrombosis / types of thrombi

red / stagnation / venous

white / flux related

mixed / arterial / - layered
- coral like

aneurysms of the heart / large arteries

Thrombosis / types of thrombi

red / stagnation / venous

white / flux related

mixed / arterial / - layered
- coral like

aneurysms of the heart / large arteries

hyaline

Thrombosis / types of thrombi

red / stagnation / venous

white / flux related

mixed / arterial / - layered
- coral like

aneurysms of the heart / large arteries

hyaline

neoplastic

Hepatocellular carcinoma, neoplastic thrombi in the hepatic port

Thrombosis

valve mechanism

Embolism

thrombotic

peripheral

central

portal

paradoxical

retrograde

Embolism

thrombotic

Embolism

thrombotic - paradoxical

Embolism

thrombotic - paradoxical

a cause of brain infarction

Embolism

thrombotic

of air

of fatty tissue

neoplastic

cellular

subcellular

air embolism

fat embolism

Purpura cerebri

embolism of the bone marrow (cellular / fatty)

Disturbances of the blood flow – local

causes

thrombosis

embolism

metastasis

manifestation

hyperemia (local)

anemia – ischemia (local)

hemorrhage

Disturbances of the blood flow – local

causes

thrombosis

embolism

metastasis

manifestation

hyperemia (local)

anemia – ischemia (local)

hemorrhage

hyperemia

arterial

peristatic

venous

Disturbances of the blood flow – local

causes

thrombosis

embolism

metastasis

manifestation

hyperemia (local)

anemia – ischemia (local)

hemorrhage

infarction / infarsation

infarction of the kidney

myocardial infarction

lung infarction

hemorrhagic infarction /
infarsation of the intestines

Disturbances of the blood flow – local

causes

thrombosis

embolism

metastasis

manifestation

hyperemia (local)

anemia – ischemia (local)

hemorrhage

trombocytopenie / patie

koagulopatie

vaskulopatie

Petechia

Suffusion

cholemic bleeding

Ecchymosis

Hemascos

Hemopericardium

DIC

Waterhouse – Friedrichsen syndrome

apoplexia cerebri

hemocephalus