



Koagulasi Intravaskular Diseminata

Disseminated Intravascular Coagulation (DIC)

MODUL HEMATOLOGI-ONKOLOGI

Narator

dr. Fikri Ichsan Wiguna

Narasumber

Dr. dr. Ikhwan Rinaldi, Sp.PD-KHOM, M. Epid

Tujuan Pembelajaran

- Mahasiswa mampu menjelaskan pengertian dan perjalanan penyakit koagulasi intravaskular diseminata
- Mahasiswa mampu mengenali manifestasi klinis penyakit koagulasi intravaskular diseminata dan menjelaskan pemeriksaan penunjang yang diperlukan untuk menegakkan diagnosis
- Mahasiswa mampu menjelaskan tata laksana penyakit koagulasi intravaskular diseminata

Daftar Isi

❑ Definisi

❑ Etiologi

❑ Fisiologi – Patofisiologi

❑ Manifestasi Klinis

❑ Diagnosis

❑ Tata Laksana

DEFINISI



Definisi

Sindrom **didapat** yang ditandai dengan teraktivasiya **sistem koagulasi intravaskular** yang **tersebar** dan disebabkan oleh berbagai kemungkinan penyebab

Sumber:

1. Gando S, Levi M, Toh C-H. Disseminated intravascular coagulation. Nature [Internet]. 2016;2:1–16. Available from: <http://dx.doi.org/10.1038/nrdp.2016.37>

ETIOLOGI



Etiologi

Berdasarkan etiologi:

- ❑ Sepsis / infeksi (30-51%)
- ❑ Trauma / pembedahan (45%)
- ❑ Komplikasi obstetrik (0,03%)
- ❑ Keganasan, destruksi organ

Sumber:

1. Gando S, Levi M, Toh C-H. Disseminated intravascular coagulation. Nature [Internet]. 2016;2:1–16. Available from: <http://dx.doi.org/10.1038/nrdp.2016.37>

Etiologi

Table I. Conditions associated with DIC.

Sepsis and severe infection

Trauma

Organ destruction e.g pancreatitis

Malignancy

 Solid tumours

 Leukaemia

Obstetric

 Amniotic fluid embolism

 Placental abruption

 Pre-eclampsia

Vascular abnormalities

 Large haemangiomas

 Vascular aneurysm

Severe liver failure

Toxic and immunological insults

 Snake bites

 Recreational drugs

 ABO transfusion incompatibility

 Transplant rejection

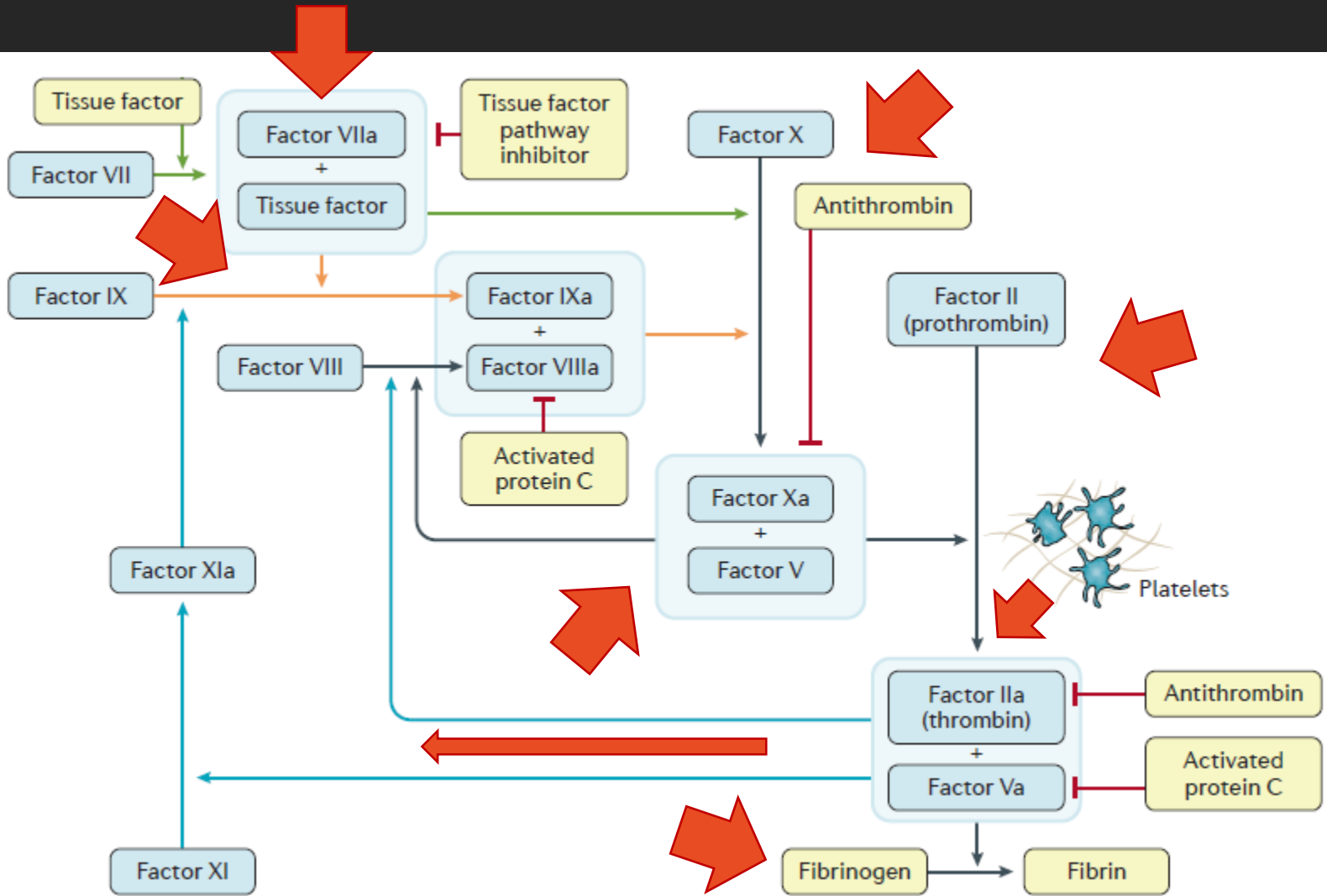
Sumber:

2. Levi M, Toh CH, Thachil J, Watson HG. Guidelines for the diagnosis and management of disseminated intravascular coagulation. Br J Haematol. 2009;145(1):24–33.

FISIOLOGI - PATO FISIOLOGI



Fisiologi Proses Koagulasi



Sumber:

1. Gando S, Levi M, Toh C-H. Disseminated intravascular coagulation. Nature [Internet]. 2016;2:1-16. Available from: <http://dx.doi.org/10.1038/nrdp.2016.37>

Patofisiologi KID

Aktivasi koagulasi

Gangguan sistem regulasi (antikoagulan)

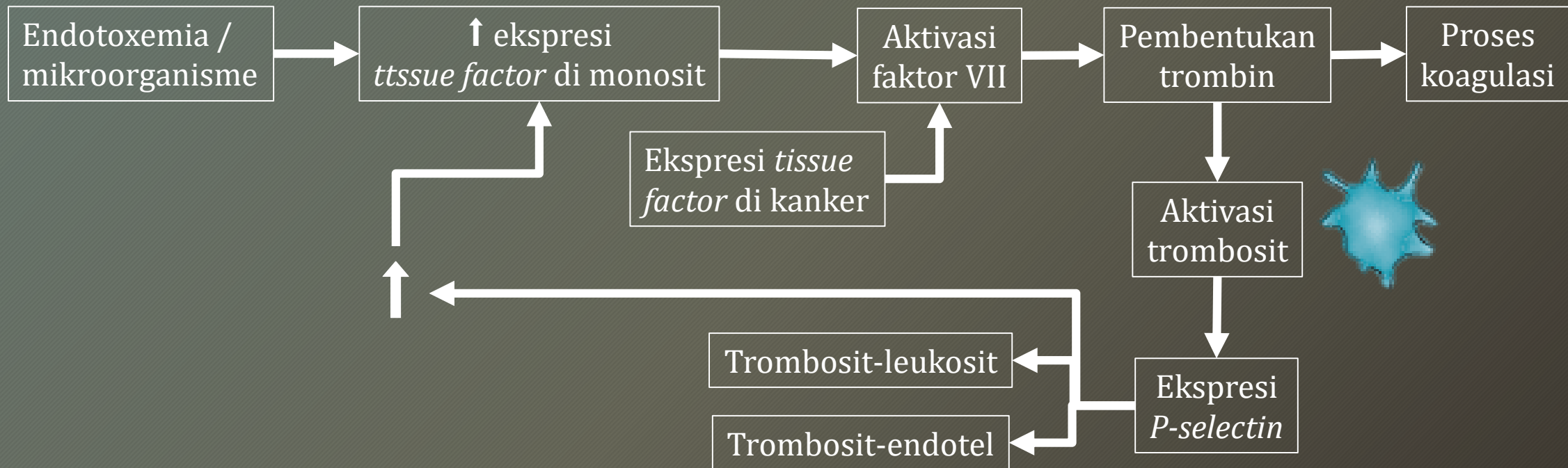
- Antitrombin
- *Activated Protein C (APC)*
- *Tissue-factor Pathway Inhibitor (TFPI)*

Hubungan koagulasi-inflamasi

Sumber:

1. Gando S, Levi M, Toh C-H. Disseminated intravascular coagulation. Nature [Internet]. 2016;2:1–16. Available from: <http://dx.doi.org/10.1038/nrdp.2016.37>

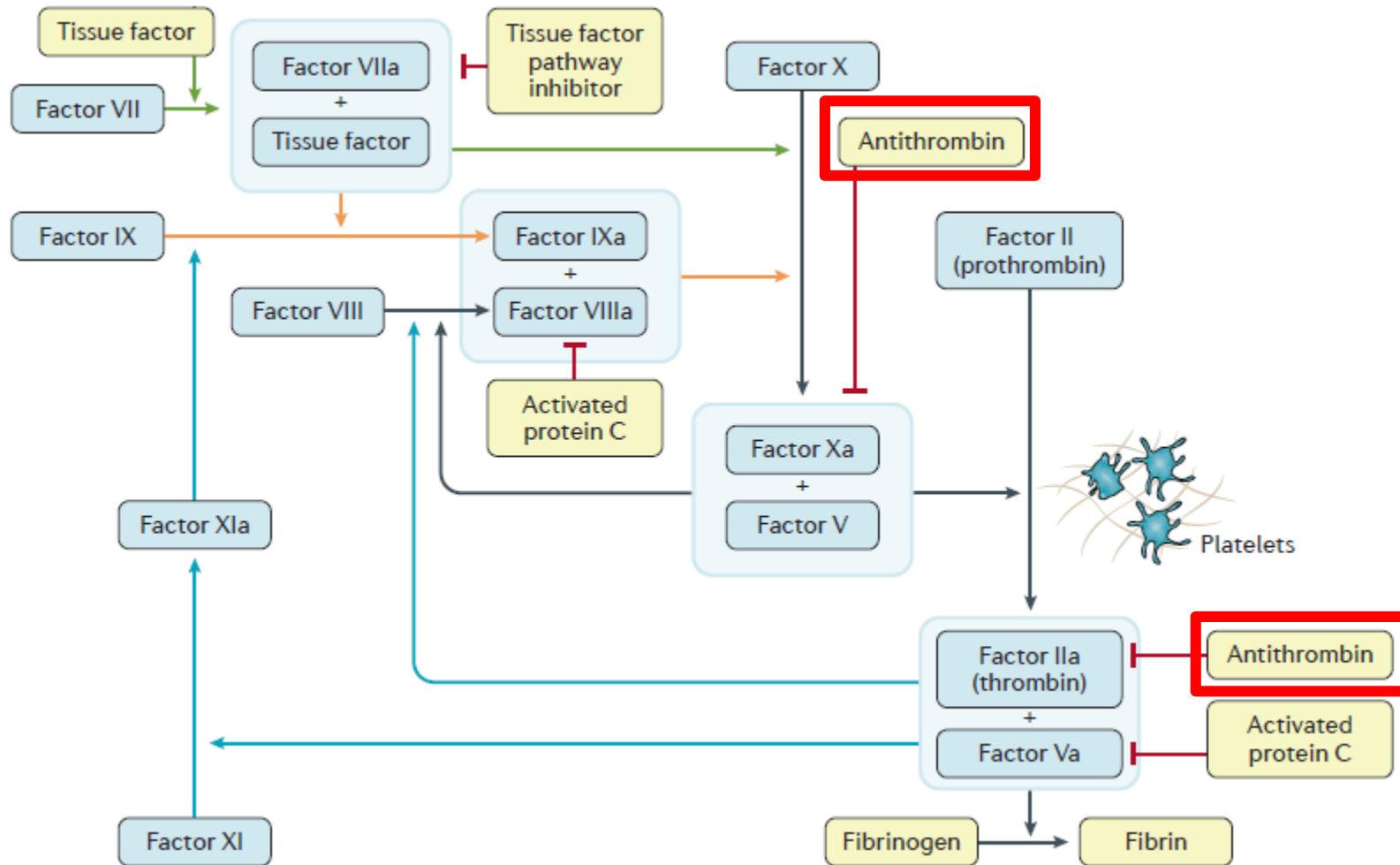
Patofisiologi KID – Aktivasi Koagulasi



Sumber:

1. Gando S, Levi M, Toh C-H. Disseminated intravascular coagulation. Nature [Internet]. 2016;2:1–16. Available from: <http://dx.doi.org/10.1038/nrdp.2016.37>

Patofisiologi KID – Gangguan Regulasi



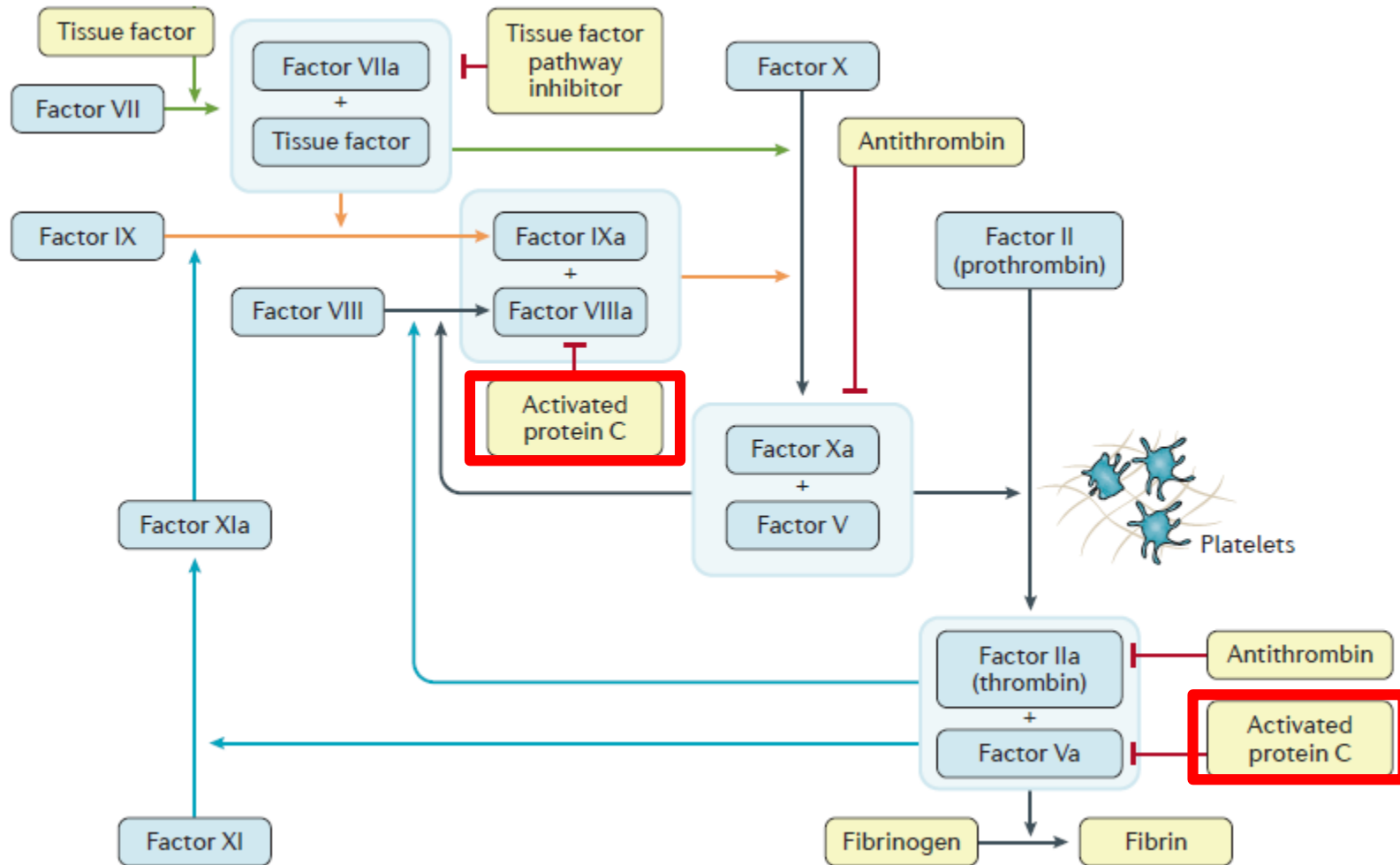
Defisiensi karena:

- ↓ sintesis protein
- ↑ *clearance*
- Kebocoran ekstravaskular

Sumber:

1. Gando S, Levi M, Toh C-H. Disseminated intravascular coagulation. Nature [Internet]. 2016;2:1–16. Available from: <http://dx.doi.org/10.1038/nrdp.2016.37>

Patofisiologi KID – Gangguan Regulasi

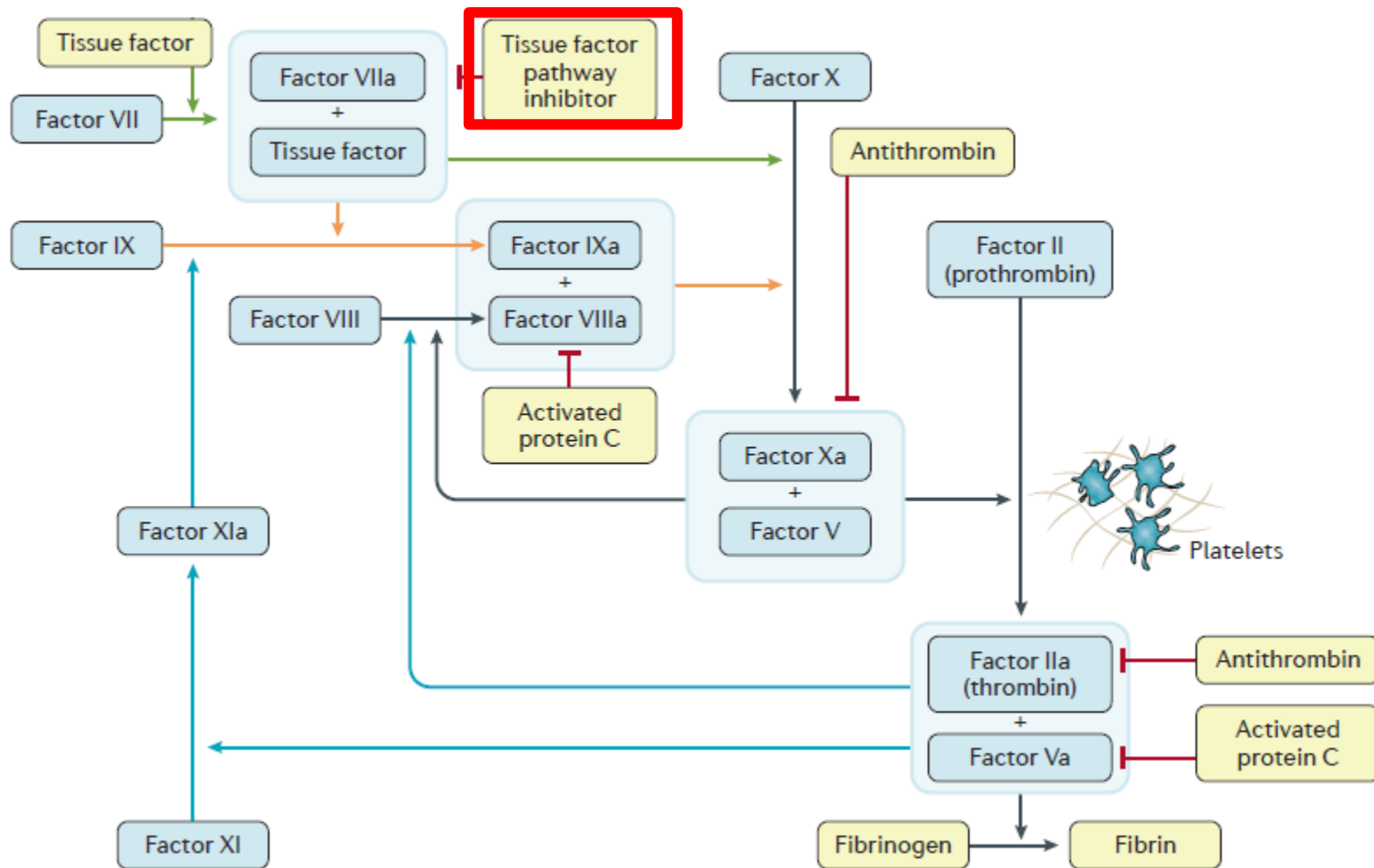


Protein C
↓
Trombin-Trombomodulin
↓
APC

Sumber:

1. Gando S, Levi M, Toh C-H. Disseminated intravascular coagulation. Nature [Internet]. 2016;2:1–16. Available from: <http://dx.doi.org/10.1038/nrdp.2016.37>

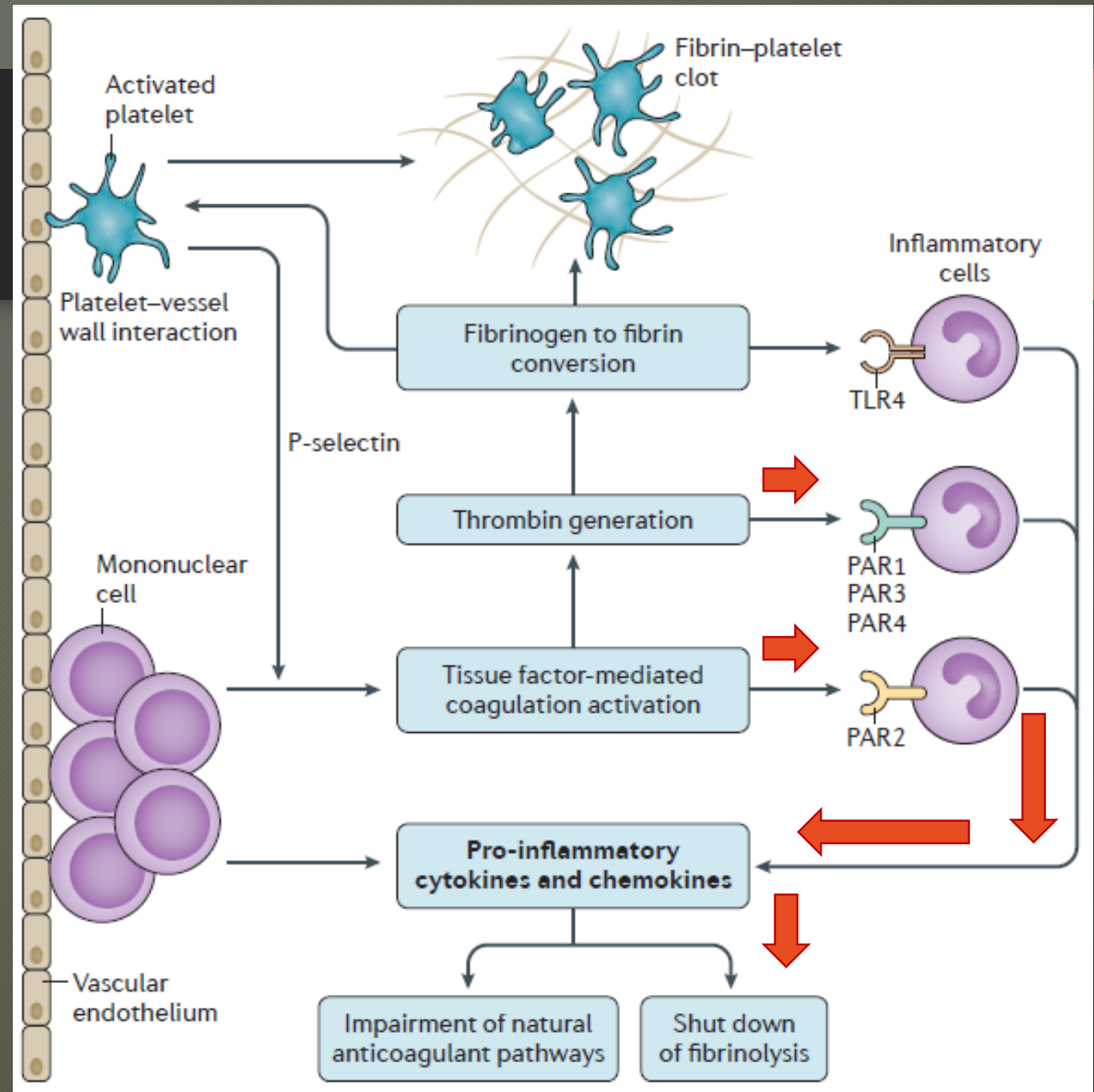
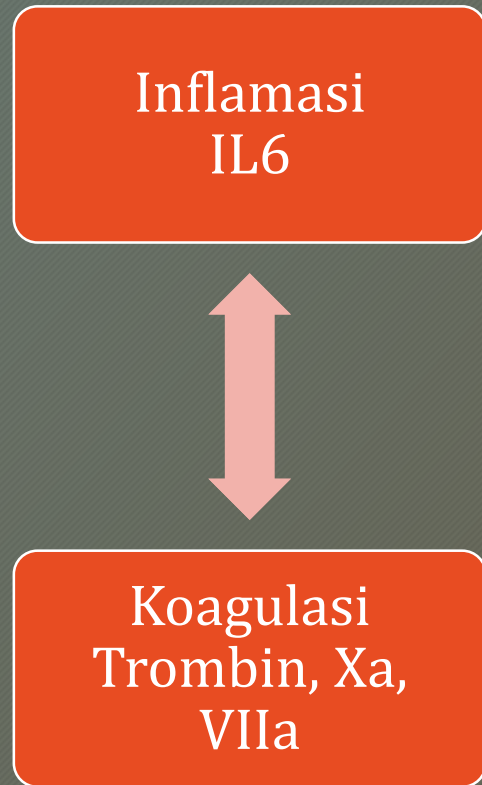
Patofisiologi KID – Gangguan Regulasi



Sumber:

1. Gando S, Levi M, Toh C-H. Disseminated intravascular coagulation. Nature [Internet]. 2016;2:1–16. Available from: <http://dx.doi.org/10.1038/nrdp.2016.37>

Patofisiologi Inflamasi dan Koagulasi



Sumber:

1. Gando S, Levi M, Toh C-H. Disseminated intravascular coagulation. Nature [Internet]. 2016;2:1-16. Available from: <http://dx.doi.org/10.1038/nrdp.2016.37>

MANIFESTASI KLINIS



Manifestasi Klinis

Perdarahan

- Perdarahan kulit dan mukosa yang luas
- Perdarahan akibat tindakan medis

Trombosis

- Purpura fulminan
- Akrosianosis perifer

Disfungsi organ

- Perubahan penanda serum dari liver, ginjal, jantung
- Ikterus
- Abnormalitas sistem saraf pusat

Sumber:

3. Suharti C. Koagulasi intravaskular diseminata. In: Buku Ajar Ilmu Penyakit Dalam. 6th ed. Jakarta: Interna Publishing; 2014. p. 2789–95.

DIAGNOSIS



Diagnosis

Klinis

Laboratoris

Sumber:

2. Levi M, Toh CH, Thachil J, Watson HG. Guidelines for the diagnosis and management of disseminated intravascular coagulation. Br J Haematol. 2009;145(1):24-33.

Diagnosis

Laboratoris

Jumlah trombosit

Menurun

Prothrombin Time (PT) dan activated Partial Prothrombin Time (aPTT)

Meningkat

D-Dimer

Meningkat

Fibrinogen

Menurun

Sumber:

2. Levi M, Toh CH, Thachil J, Watson HG. Guidelines for the diagnosis and management of disseminated intravascular coagulation. Br J Haematol. 2009;145(1):24–33.

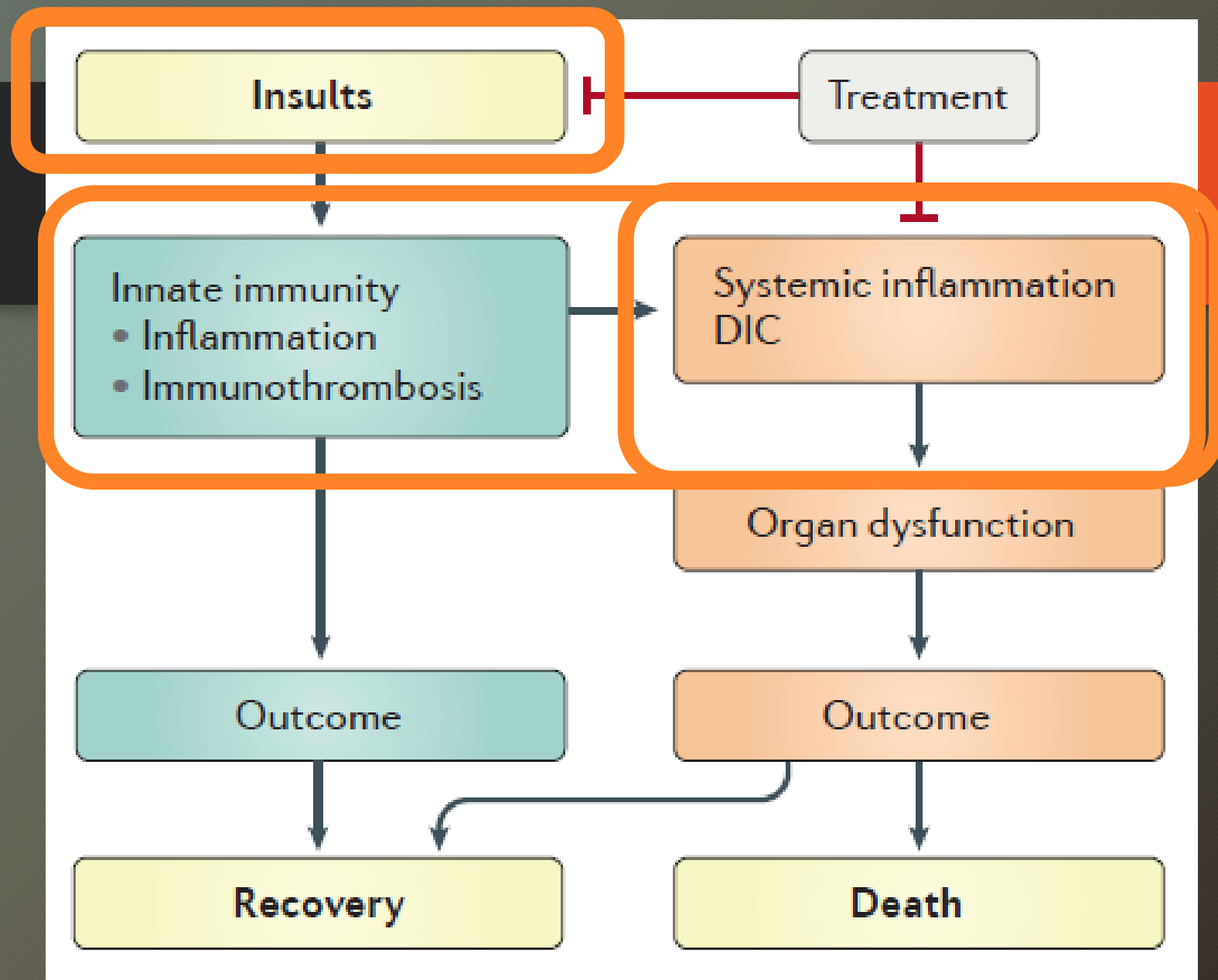
TATA LAKSANA



Tata Laksana

Terkontrol

Tidak Terkontrol



Sumber:

2. Levi M, Toh CH, Thachil J, Watson HG. Guidelines for the diagnosis and management of disseminated intravascular coagulation. Br J Haematol. 2009;145(1):24-33.

Tata Laksana - Suportif

- Trombosit

- Indikasi:

- Perdarahan aktif
 - Berisiko mengalami perdarahan

- Nilai ambang terindikasi:

- $<50 \times 10^9/L \rightarrow$ Perdarahan
 - $10-20 \times 10^9/L \rightarrow$ Tidak ada perdarahan

- Plasma

- Indikasi:

- Perdarahan
 - Pemanjangan nilai PT dan aPTT

- Sediaan

- *Fresh Frozen Plasma*

Sumber:

2. Levi M, Toh CH, Thachil J, Watson HG. Guidelines for the diagnosis and management of disseminated intravascular coagulation. Br J Haematol. 2009;145(1):24–33.

Tata Laksana - Suportif

Sumber:

2. Levi M, Toh CH, Thachil J, Watson HG. Guidelines for the diagnosis and management of disseminated intravascular coagulation. Br J Haematol. 2009;145(1):24–33.

Tata Laksana - Suportif

- Antifibrinolitik
 - Tidak digunakan pada KID

Sumber:

2. Levi M, Toh CH, Thachil J, Watson HG. Guidelines for the diagnosis and management of disseminated intravascular coagulation. Br J Haematol. 2009;145(1):24–33.

Kesimpulan

Koagulasi intravaskular diseminata atau KID merupakan penyakit yang umumnya menjadi komplikasi dari penyakit lain. Manajemen untuk KID pun tidak lepas dari manajemen penyakit yang melatarbelakanginya

Daftar Pustaka

1. Gando S, Levi M, Toh C-H. Disseminated intravascular coagulation. *Nature* [Internet]. 2016;2:1–16. Available from: <http://dx.doi.org/10.1038/nrdp.2016.37>
2. Levi M, Toh CH, Thachil J, Watson HG. Guidelines for the diagnosis and management of disseminated intravascular coagulation. *Br J Haematol.* 2009;145(1):24–33.
3. Suharti C. Koagulasi intravaskular diseminata. In: *Buku Ajar Ilmu Penyakit Dalam*. 6th ed. Jakarta: Interna Publishing; 2014. p. 2789–95.

Terima Kasih

Jangan lupa untuk mengerjakan soal latihan ya!