Nemocnice Jičín

Prevence zástavy oběhu kardiální etiologie v rukou nekardiologů

Jiří Nový

Nikdy neresuscitovaný pacient má **VŽDY** lepší prognózu než resuscitovaný…

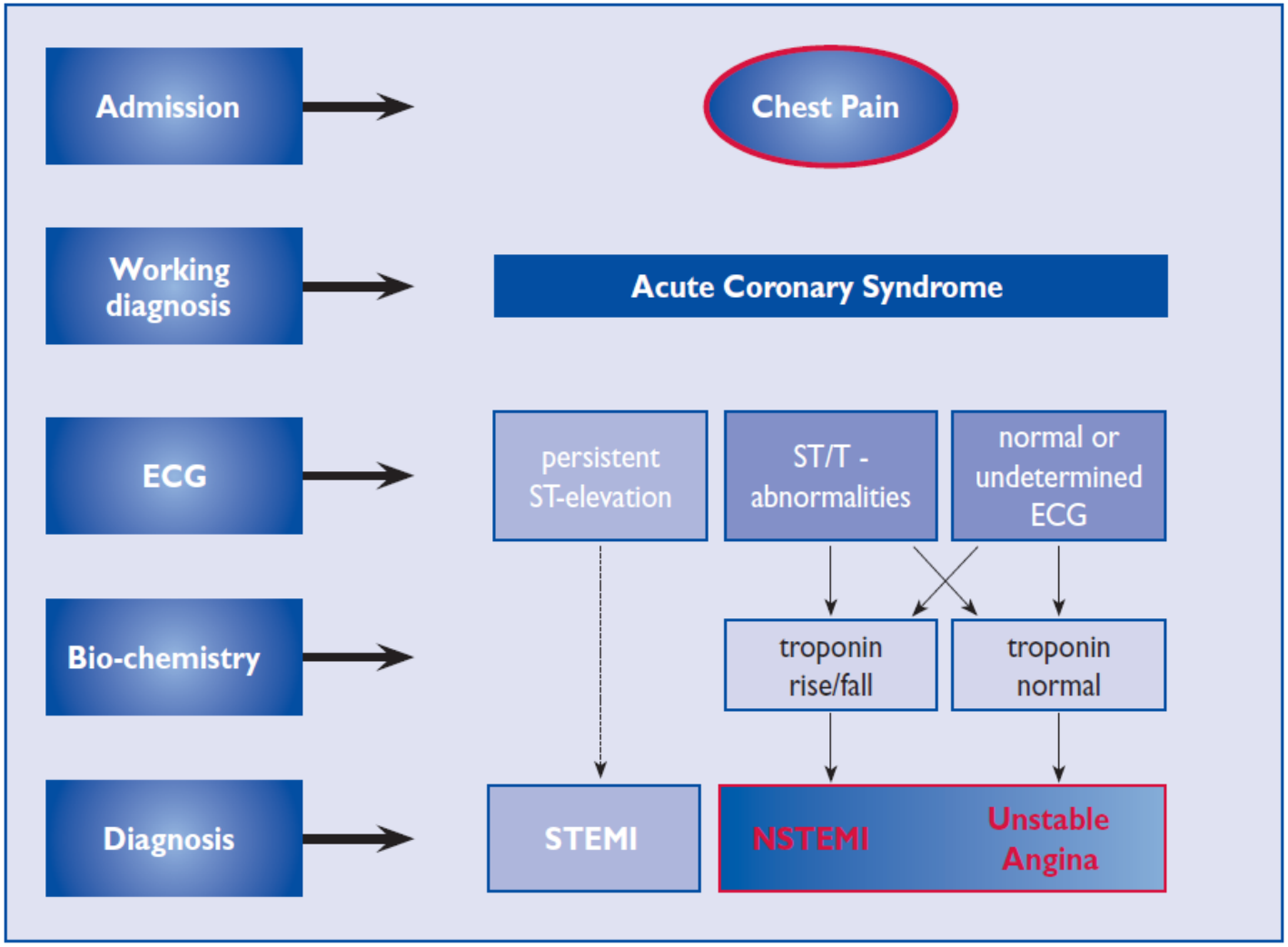
O čem bude řeč…?

- akutní koronární syndrom/infarkt myokardu
- plicní embolie
- tachykardie/bradykardie
- pitfalls/nástrahy

Co v úvodu funguje jistě…

- **včasné rozpoznání rizikového pacienta**
- kontinuální monitorace EKG
- 12 EKG u nestabilního pacienta
- ABCDE přístup
- orientační echokardiografie u pacienta v kritickém stavu
- **kauzální léčba stavu/nemoci**

Akutní koronární syndrom



Nemocnice Jičín

Akutní infarkt myokardu

stav s prokázanou myokardiální nekrozou

+

vzestup/pokles hodnoty troponinu v kontrole

+

symptomy ischemie
nově vzniklé signifikantní změny ST-T
vývoj patologických Q vln
průkaz poruchy viability zobrazovací metodou
průkaz koronární trombozy (kat nebo sekce)

ESC NSTEMI 2015

Nemocnice Jičín

Akutní infarkt myokardu

Type 1: Spontaneous myocardial infarction

Spontaneous myo…ion related to atherosclerotic plaque rupture, ulceration, fissuring, erosion, or dissection with resulting intraluminal thrombus in one or more of the …arteries leading to decreased myocardial blood flow or distal platelet emboli with ensuing myocyte necrosis. The patient may have underlying severe C… occasion non-obstructive or no CAD.

Typ…

In in… …d/or dem… …sion, and …

Typ…

Carc… …ood samp…

Typ…

Myocardial infarction associated with PCI is arbitrarily defined by elevation of cTn values >5 x 99th percentile URL in patients with normal baseline values (≤99th percentile URL) or a rise of cTn values >20% if the baseline values are elevated and are stable or falling. In addition, either (i) symptoms suggestive of myocardial ischaemia, or (ii) new ischaemic ECG changes or new LBBB, or (iii) angiographic loss of patency of a major coronary artery or a side branch or persistent slow- or no-flow or embolization, or (iv) imaging demonstration of new loss of viable myocardium or new regional wall motion abnormality are required.

Type 4b: Myocardial infarction related to stent thrombosis

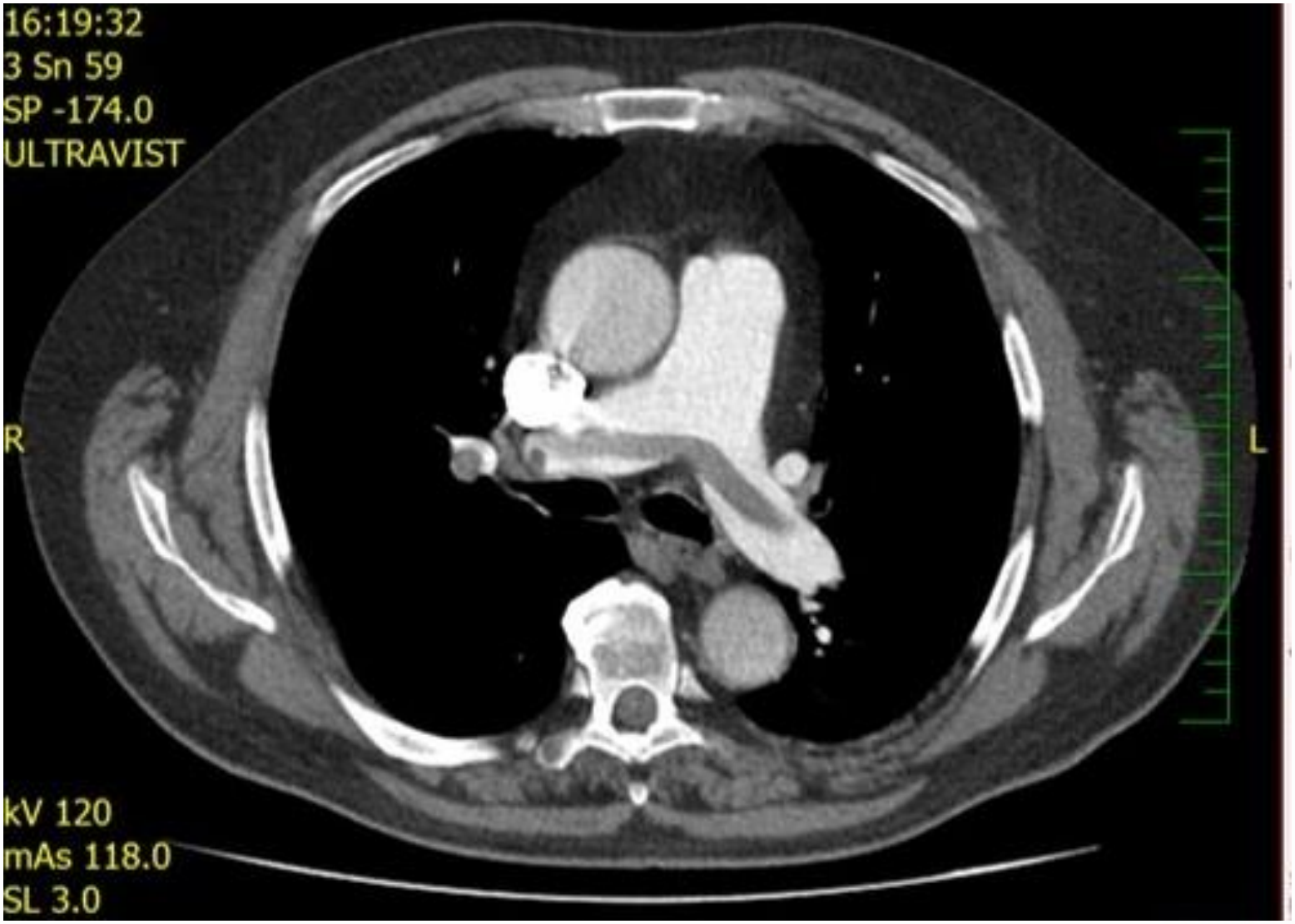
Myocardial infarction associated with stent thrombosis is detected by coronary angiography or autopsy in the setting of myocardial ischaemia and with a rise and/or fall of cardiac biomarkers values with at least one value above the 99th percentile URL.

Type 5: Myocardial infarction related to coronary artery bypass grafting (CABG)

Myocardial infarction associated with CABG is arbitrarily defined by elevation of cardiac biomarker values >10 x 99th percentile URL in patients with normal baseline cTn values (≤99th percentile URL). In addition, either (i) new pathological Q waves or new LBBB, or (ii) angiogra… native coronary artery occlusion, or (iii) imaging evidence of new loss of viable myocardium or new regional wall motion a…

4th def IM ESC 2018

Plicní embolie



ESC PE 2019

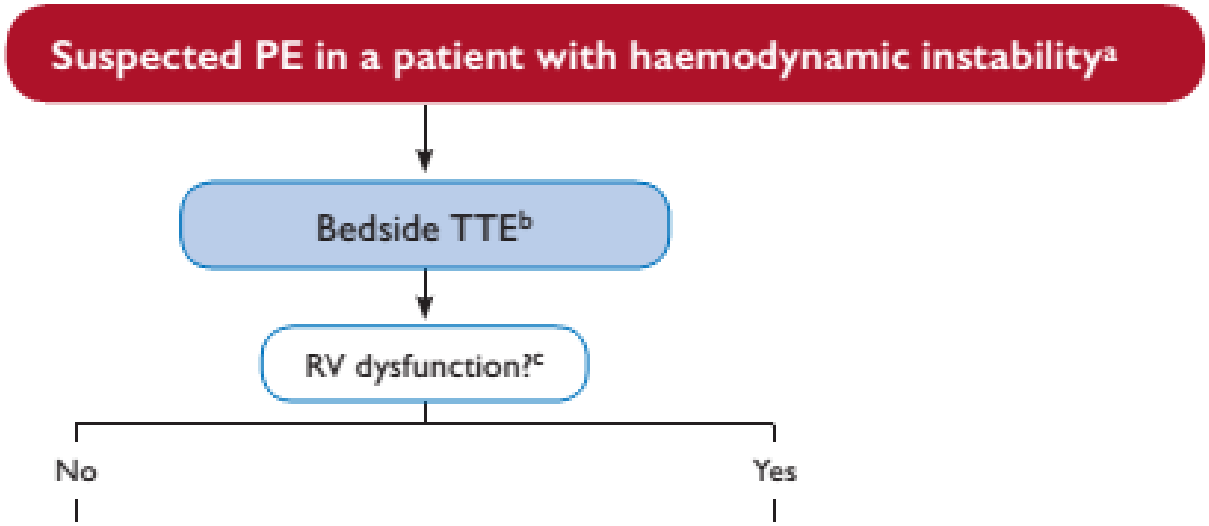
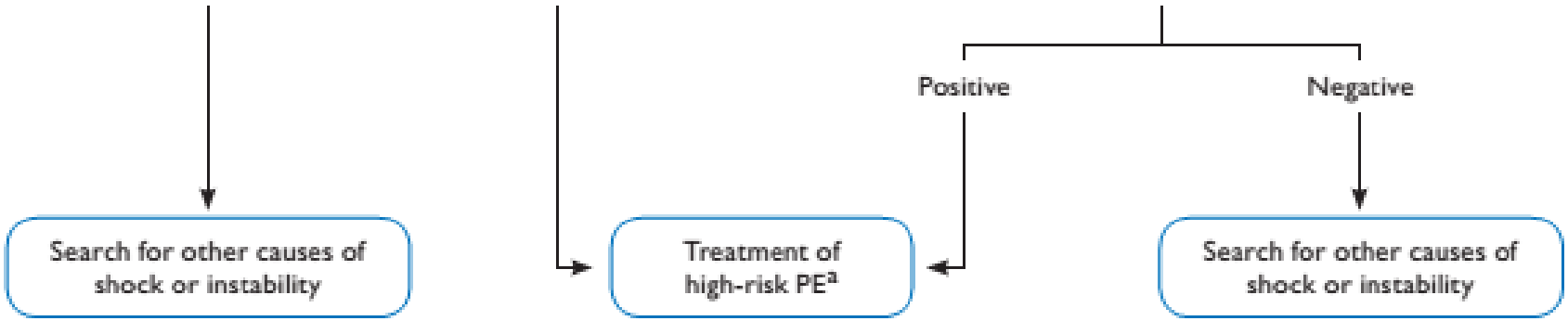


Table 4 **Definition of haemodynamic instability, which delineates acute high-risk pulmonary embolism (one of the following clinical manifestations at presentation)**

(1) Cardiac arrest	(2) Obstructive shock[68–70]	(3) Persistent hypotension
Need for cardiopulmonary resuscitation	Systolic BP < 90 mmHg or vasopressors required to achieve a BP ≥90 mmHg despite adequate filling status	Systolic BP < 90 mmHg or systolic BP drop ≥40 mmHg, lasting longer than 15 min and not caused by new-onset arrhythmia, hypovolaemia, or sepsis
	And	
	End-organ hypoperfusion (altered mental status; cold, clammy skin; oliguria/anuria; increased serum lactate)	



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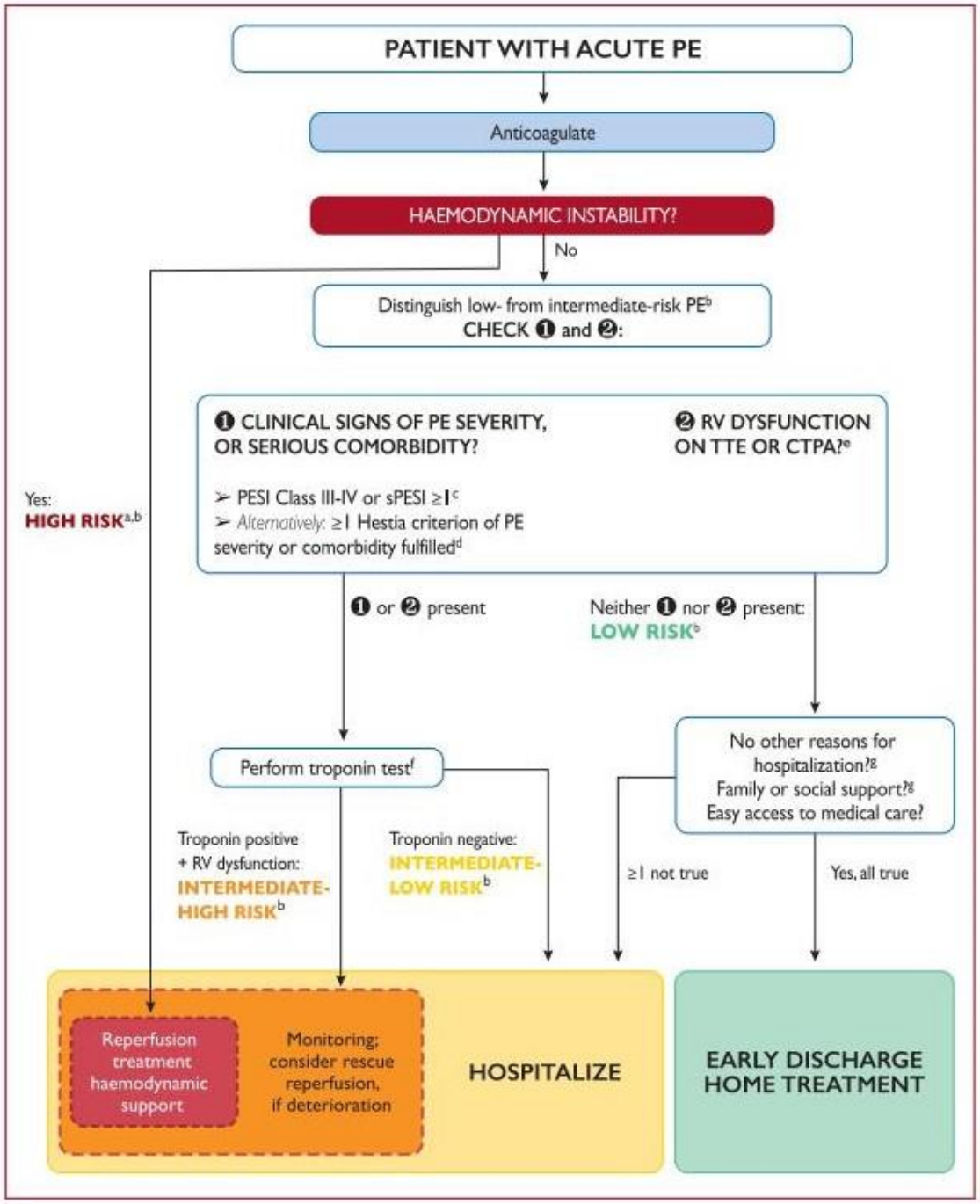

PATIENT WITH ACUTE PE
Anticoagulate
HAEMODYNAMIC INSTABILITY?
No
Distinguish low- from intermediate-risk PE[b]
CHECK ❶ and ❷:
❶ CLINICAL SIGNS OF PE SEVERITY, OR SERIOUS COMORBIDITY?
➢ PESI Class III-IV or sPESI ≥1[c]
➢ Alternatively: ≥1 Hestia criterion of PE severity or comorbidity fulfilled[d]
❷ RV DYSFUNCTION ON TTE OR CTPA?[e]
Yes:
HIGH RISK[a,b]
❶ or ❷ present
Neither ❶ nor ❷ present:
LOW RISK[b]
Perform troponin test[f]
No other reasons for hospitalization?[g]
Family or social support?[g]
Easy access to medical care?
Troponin positive + RV dysfunction:
INTERMEDIATE-HIGH RISK[b]
Troponin negative:
INTERMEDIATE-LOW RISK[b]
≥1 not true
Yes, all true
Reperfusion treatment haemodynamic support
Monitoring; consider rescue reperfusion, if deterioration
HOSPITALIZE
EARLY DISCHARGE HOME TREATMENT
©ESC 2019

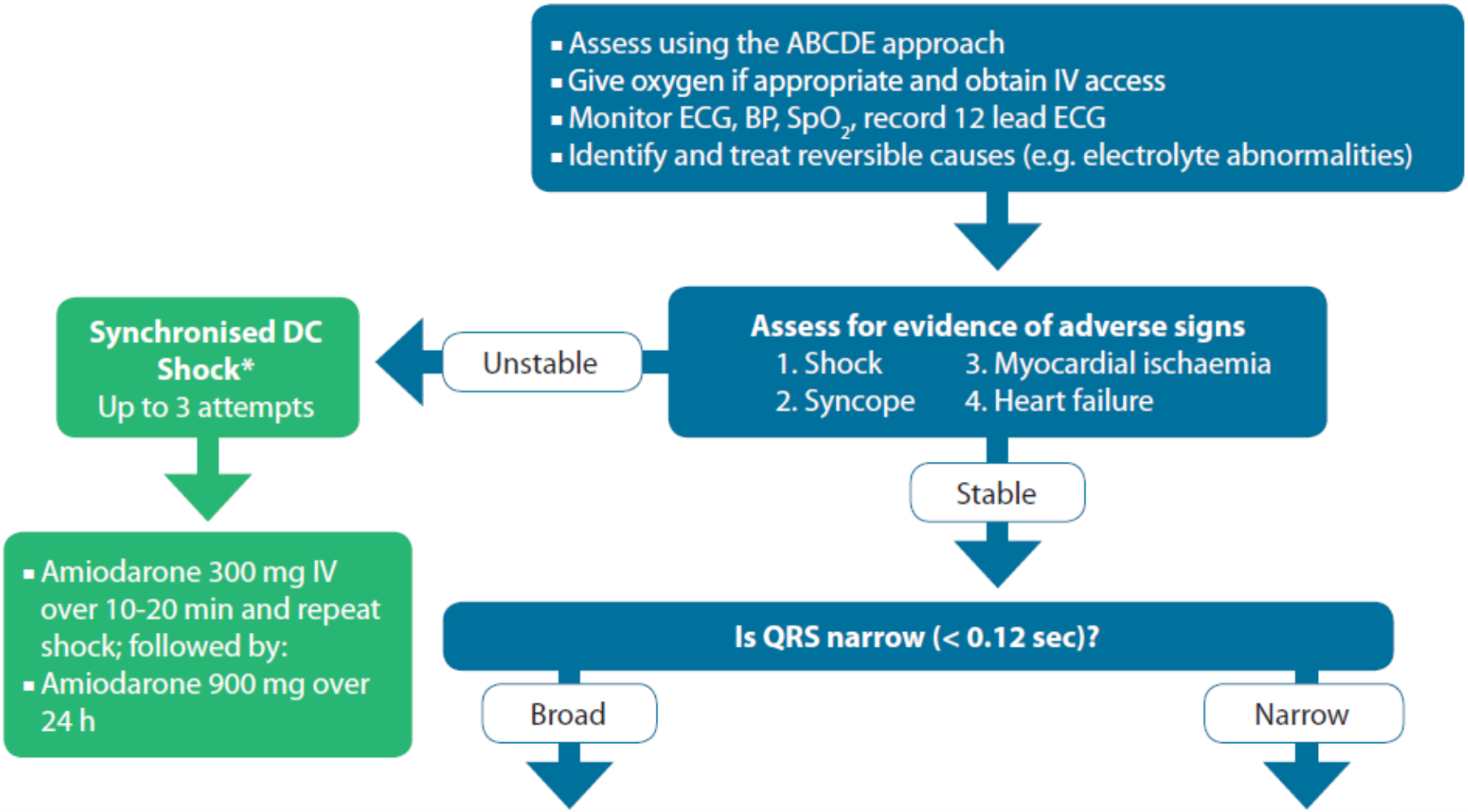
6.6 Recommendations for acute-phase treatment of high-risk pulmonary embolism[a]

Recommendations	Class[b]	Level[c]
It is recommended that anticoagulation with UFH, including a weight-adjusted bolus injection, be initiated without delay in patients with	I	C

Molecule	Regimen
rtPA	100 mg over 2 h
	0.6 mg/kg over 15 min (maximum dose 50 mg)[a]

thrombolysis is contraindicated or has failed.[d] [281]		
Percutaneous catheter-directed treatment should be considered for patients with high-risk PE, in whom thrombolysis is contraindicated or has failed.[d]	IIa	C
Norepinephrine and/or dobutamine should be considered in patients with high-risk PE.	IIa	C
ECMO may be considered, in combination with surgical embolectomy or catheter-directed treatment, in patients with PE and refractory circulatory collapse or cardiac arrest.[d] [252]	IIb	C

Tachykardie

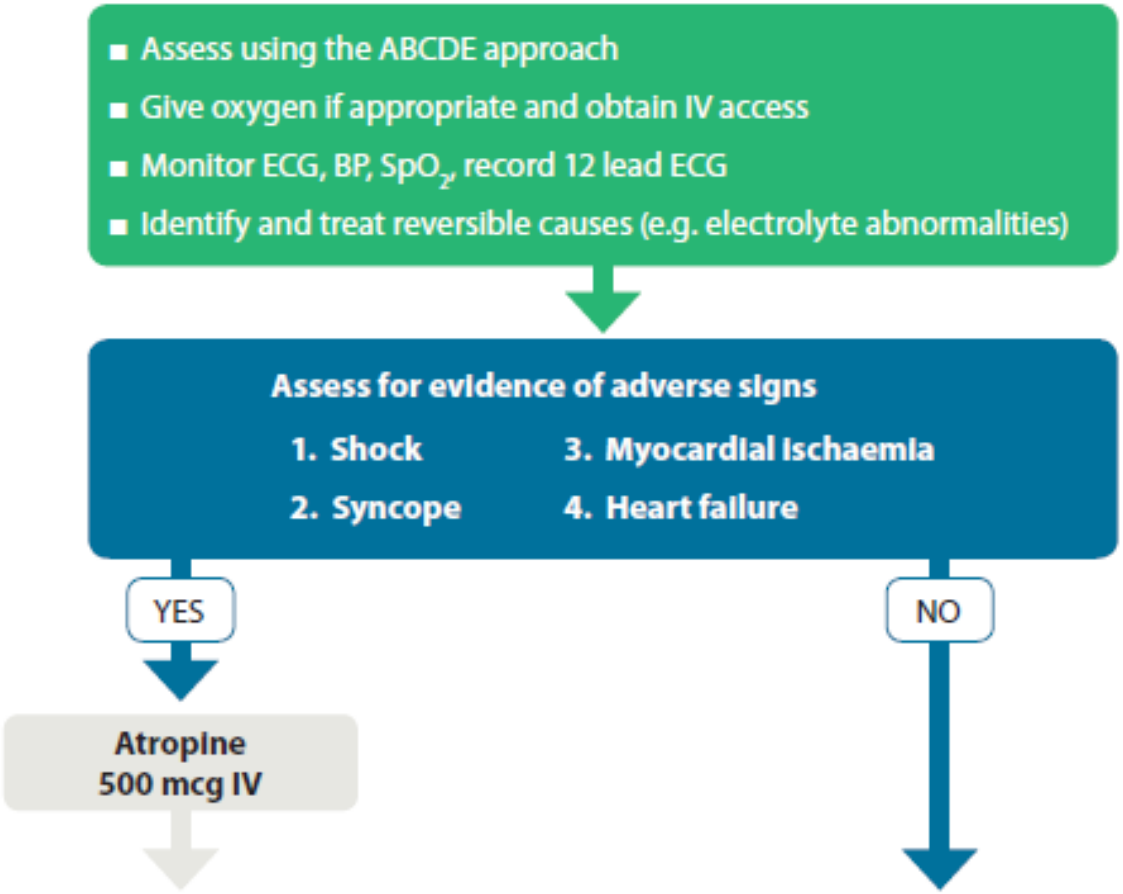


Bradykardie

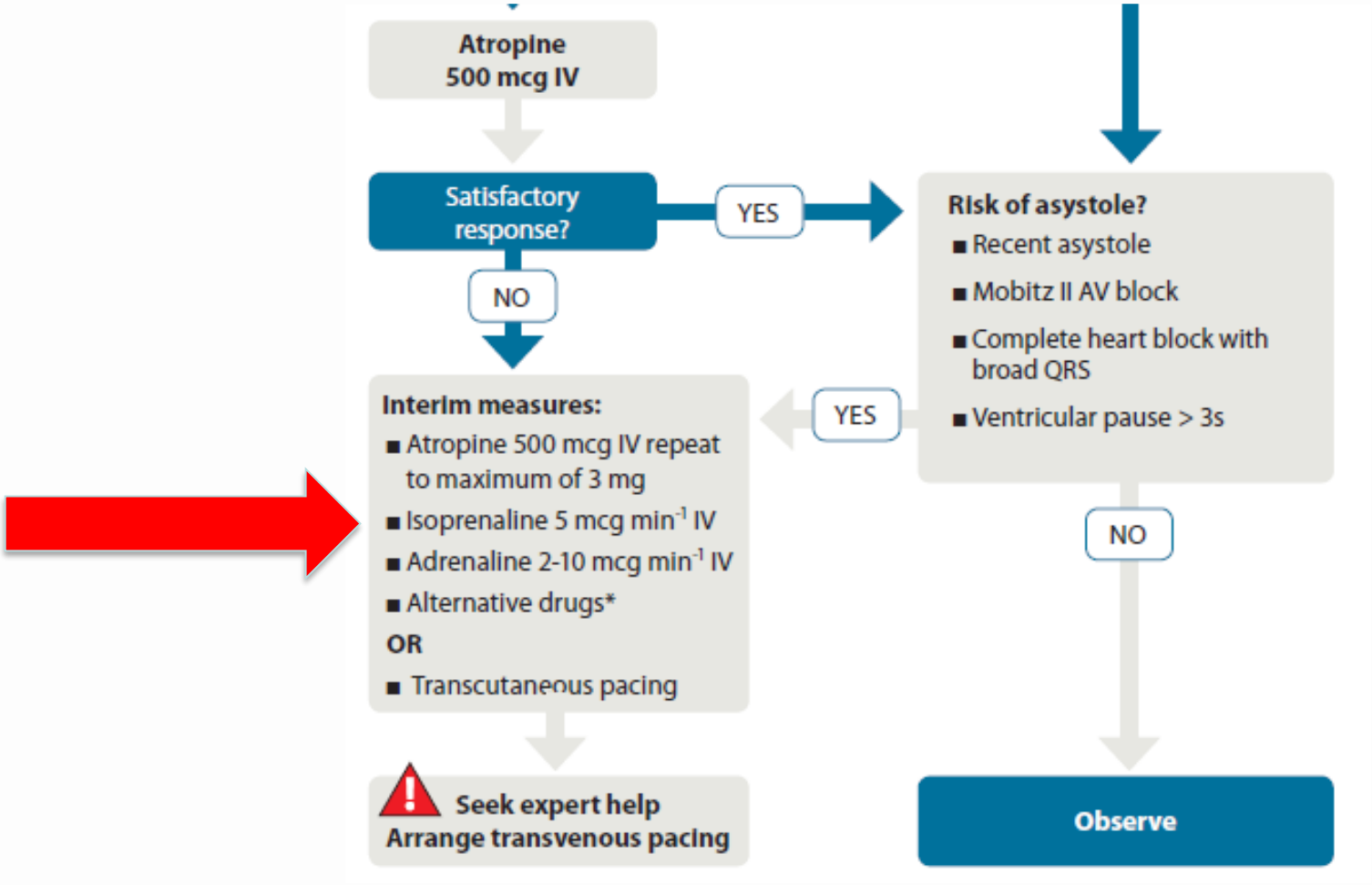
- nejedná se o „fyziologickou“ sinusovou bradykardii?
- nejedná se o důsledek akutního infarktu?
- je přítomen vysoce rizikový EKG nález?

- **AV blokáda 2. stupně Mobitz II.**
- **AV blokáda 3. stupně s ŠIROKÝM QRS komplexem**
- **pauza mezi QRS komplexy větší než 3 vteřiny**

Bradycardia Algorithm



Bradykardie



Nástrahy

- EKG změny u krvácení do CNS často napodobují myokardiální ischemii
- přiložením magnetu na ICD zablokujeme defibrilační funkci, ale stimulační je zachována
- absence pulzu u pacienta s LVAD není známkou zástavy oběhu

Co tedy ještě funguje…nejen v úvodu

- léčit pacienta nikoliv čísla
- echokardiografie brzo (a opakovaně…)
- kauzální léčba

Děkuji za pozornost ☺