CASE REPORT

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指導者:V.S許瓏文
103.04.08

Case 1-Basic data

- Gender: 69-yo female
- Date: DAY1 10:41 am
- C/C: 呼吸短促10幾天
- TPR: 36.3/106/30 BP:75/49
  SpO2: 98% GCS: E4V5M6
- Triage: 1

Present illness

- SOB for 10+ days
- No fever recently
- Exertional dyspnea(+)
- No vomiting, no black stool
- No headache, no abdominal pain
- No back pain
- Chest discomfort(+)

History

- Medical hx: HTN; Denied CAD/DM
- Allergy: NKA

Physical Examination

- Consciousness: E4V5M4~5
- HEENT: Pupil(3+,3+)
- Chest: coarse breathing sound, no wheezing, RHB
- Abdomen: Soft, no tender
- Extremities: soft, no pitting edema

Impression

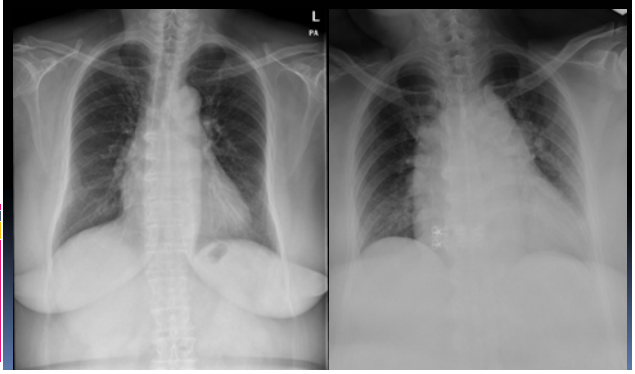
- SOB

Order DAY1 10:59am (0hr18min)

- CBC/DC/PLT
- PT/APTT
- AST, Cr, Troponin-I, CK, CK-MB
- ABG6
- F/S (104)
- EKG, CXR(p)
- N/S 300ml than run 60ml/hrB/C x II
- On monitor

pH	7.414
pCO_2	33.3
pO_2	62
BE	-3
HCO_3	21.3
TCO_2	22
SO_2	92%
NA	139
K	3.4
HB	13.6
HCT	40

CXR DAY1



Order DAY1 11:53 (1hr12min)

- Primperan 1amp IV ST
- N/S 500ml ST
- Nausea
- BP: 76/56; 69/29mmHg
- HR: 104
- RR:20

DAY1

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值
CBC/Platelet/DC	**********			
WBC	15.5	X1000/ul	3.8	10
RBC	4.89	million	3.8	5
Hb	14.3	gm/dl	11	16
Ht	43.1	%	35	48
MCV	88.1	fl	81	98
MCH	29.2	pg	27	32
MCHC	33.2	%	32	36
RDW	14.2	%	11.5	14.5
Platelet	180	x1000/ul	140	450
Differential count	**********			
Segmented Neutro.	68.0	%	37	75
Lymphocyte	14.0	%	20	55
Monocyte	13.0	%	4	10
Eosinophil	0.0	%	0	5
Basophil	0.0	%	0	2
Atypical lymphocyte	0.0	%	0	3
Band	4.0	%	0	5

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考
T	12.6	second	9.4	
ormal control	10.8	second		
NR	1.16	Ratio	0.8	
PTT	26.8	second	28.6	
ormal control	33.4	second		
PTT ratio	0.80			

DAY1

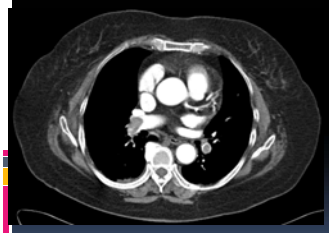
檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值	Hi,Lo值	前次檢驗
GOT(AST)	72	U/L	5	35	*H	
CPK	53	U/L	30	223		
Creatinine	1.12	mg/dL	0.5	1.3		0.8
eGFR	48.23					71.55
Troponin I	0.27	ug/L	0	0.5		
CK-MB	4.5	ng/mL	0.6	6.3		

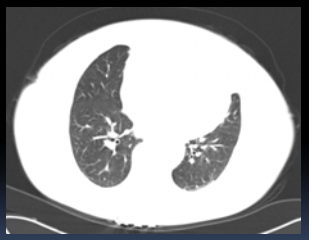
Order 13:00

- Chest CT with/without contrast
- N/C 3L/min
- Sign permit

BP:102/58
RR:22
HR:97
Pt S/S 為SOB, shock(+), CXR no obvious findings→ should r/o Pulmonary embolism, do Chest CT

DAY1 CHEST CT 14:50





Consult CV

Order 15:03 (4hr22min)

- Sign clexane permit
- 16:19 (5hr40min)
- Clexane 60mg SC ST
- Admitted to SICU
- On critical
- Call CV for ICU
- N/S 500ml IV ST
- 轉EC31

Admission

- Tentative diagnosis:
  - Bilateral pulmonary embolism
  - HTN

She was taking hormone(Estrade, Provera) replacement for postmenopausal syndrome for 1 while

DAY2

- Peripheral doppler: no DVT
- Heart echo:
  - Preserved LV contractility
  - LV was compressed by dilated RV with paradoxical septal movement
  - Moderate TR PGmax: 45

DAY2 lab

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值
AT-III activity	93.0	%	75	130

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值
PLT function screen	**********			
PFA-100:Col/Epi time	>300	seconds	84	163
PFA-100:Col/ADP time	94	seconds	63	115

檢驗項目名稱	檢驗值	檢驗值單位	最小參考值	最大參考值
Protein C,functional	100.4	%	70	140
Protein S,functional	110.5	%	60	>130

- Add wafarin; Thrombectomy or lysis were noted indicated, improved SOB

Discussion

Pulmonary embolism Scores

WELLS Score (PE)

• Clinical signs and symptoms compatible with DVT	3
• PE judged to be the most likely diagnosis	3
• Surgery or bedridden for more than 3 days during past 4 weeks	1.5
• Previous DVT or PE	1.5
• Heart rate > 100 min⁻¹	1.5
• Hemoptysis	1
• Active cancer (treatment ongoing or within previous 6 months, or palliative treatment)	1

≤ 4 : LOW (or "PE Unlikely") pretest probability
4.5 - 6 : MODERATE pretest probability
>6 : HIGH pretest probability

Wells PS, et al. Thromb Haemost 2000; 83: 416-20
Kearon C, et al. Ann Intern Med 2006; 144: 812-21

Revised Geneva Score

Variable	Points
Age >65 years	1
Previous DVT or PE	3
Surgery (under general anesthesia) or	2
Active malignant condition (solid or hematologic, currently active or considered cured <1 year)	2
Unilateral lower-limb pain	3
Hemoptysis	2
Heart rate 75–94 beats/min	3
Heart rate >94 beats /min	5
Pain on lower-limp deep venous palpation and unilateral edema	4
Clinical probability	
Low	0–3 total
Intermediate	4–10 total
High	>10 total

Pulmonary Embolism Severity Index

Predictors	Points
Age	+1 per year
Male sex	+10
Heart failure	+10
Chronic lung disease	+10
Arterial oxygen saturation <90%	+20
Pulse ≥110 beats per minute	+20
Respiratory rate ≥30 breaths per minute	+20
Temperature <36°C	+20
Cancer	+30
Systolic blood pressure <100 mm Hg	+30
Altered mental status	+60

Pulmonary Embolism Severity Score (Sum of the Points)	Risk Class	30-day Mortality Rate
≤65	I	0–1.6%
66–85	II	1.7%–3.5%
86–105	III	3.2%–7.1%
106–125	IV	4.0%–11.4%
>125	V	10.0%–24.5%

Journal WATCH

Discussion

- **AHA PE Guidelines**

Circulation
JOURNAL OF THE AMERICAN HEART ASSOCIATION

American Heart Association.

Management of Massive and Submassive Pulmonary Embolism, Iliofemoral Deep Vein Thrombosis, and Chronic Thromboembolic Pulmonary Hypertension: A Scientific Statement From the American Heart Association

Circulation. 2011;123:1788-1830

Definition of Massive PE

- Acute PE with sustained hypotension
  - SBP <90 mm Hg for at least 15 minutes or requiring inotropic support,
- not due to a cause other than PE,
  - arrhythmia, hypovolemia, sepsis, or LV dysfunction), pulselessness, or persistent profound bradycardia (heart rate <40 bpm with signs or symptoms of shock).

Definition of Submassive PE

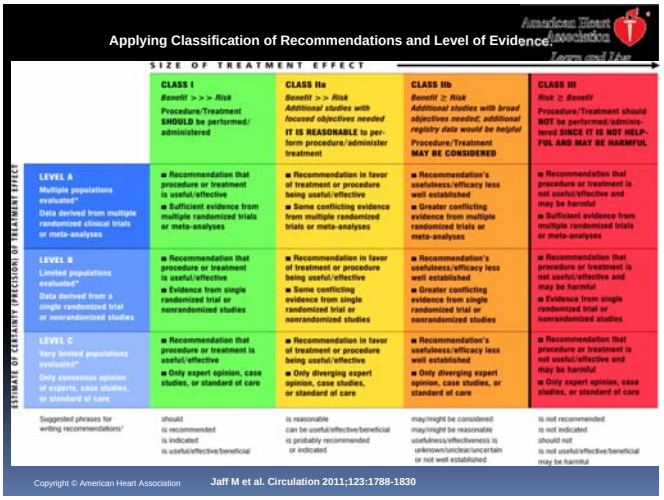
- Acute PE
  - SBP>90 mm Hg
  - with either RV dysfunction or myocardial necrosis.

Definition of Submassive PE

- RV dysfunction means the presence of at least 1 of the following:
  - —RV dilation (apical 4-chamber RV diameter divided by LV diameter >0.9) or RV systolic dysfunction on echocardiography
  - —RV dilation (4-chamber RV diameter divided by LV diameter >0.9) on CT
  - BNP >90 pg/mL
  - N-terminal pro-BNP >500 pg/mL
  - ECG changes (new complete or incomplete RBBB, anteroseptal ST elevation or depression, or anteroseptal T-wave inversion)

Definition of Submassive PE

- Myocardial necrosis is defined as either of the following:
  - troponin I >0.4 ng/mL
  - troponin T >0.1 ng/mL



Recommend

- Fibrinolysis is reasonable for pts with massive PE and acceptable risk of bleeding complications (IIa/B)
- Fibrinolysis may be considered for pts with submassive PE judged to have clinical evidence of adverse prognosis (hemodynamic instability, worsening resp. insufficiency, severe RV dysfunction, or major myocardial necrosis) and low risk of bleeding complications (IIb/C)

Recommend

- Fibrinolysis is not recommended for patients with submassive PE with only mild dysfunction, i.e. low risk PEs (III/B)
- Fibrinolysis is not recommended for undifferentiated cardiac arrest (III/B)

Interventional and Surgical Options

- Either catheter embolectomy or surgical embolectomy can be considered depending on institutional and operator preference (IIa/C)
- Either of these are reasonable if the pt is still unstable in massive PE after fibrinolysis (IIa/C)

Interventional and Surgical Options

- Also reasonable in massive PE, if the pt has a contra-indication to lysis (IIa/C)
- May be considered in lieu of fibrinolysis in patients with submassive PE and evidence of adverse prognosis (IIb/C)
- Not recommended for pts with PE at low risk (III/C)

Contraindications to Fibrinolysis

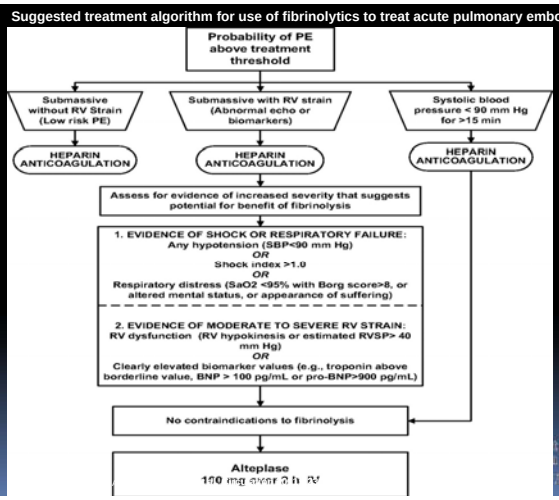
Absolute contraindications

- any prior intracranial hemorrhage,
- known structural intracranial cerebrovascular disease (eg, arteriovenous malformation),
- known malignant intracranial neoplasm,
- ischemic stroke within 3 months,
- suspected aortic dissection,
- active bleeding or bleeding diathesis,
- recent surgery encroaching on the spinal canal or brain, and
- recent significant closed-head or facial trauma with radiographic evidence of bony fracture or brain injury.

Relative contraindications

- age >75 years;
- current use of anticoagulation;
- pregnancy;
- noncompressible vascular punctures;
- traumatic or prolonged cardiopulmonary resuscitation (>10 minutes);
- recent internal bleeding (within 2 to 4 weeks);
- history of chronic, severe, and poorly controlled hypertension;
- severe uncontrolled hypertension on presentation (systolic blood pressure >180 mm Hg or diastolic blood pressure >110 mm Hg);
- dementia;
- remote (>3 months) ischemic stroke; and
- major surgery within 3 weeks.

Suggested treatment algorithm for use of fibrinolytics to treat acute pulmonary embolism.



Circulation

American Heart Association.

Management of Submassive Pulmonary Embolism
Gregory Piazza and Samuel Z. Goldhaber

Circulation. 2010;122:1124-1129

Table 2. How to Administer Fibrinolytic Therapy for Submassive PE

- Initiate anticoagulation with intravenous unfractionated heparin bolus and continuous infusion with a target aPTT of 60–80 seconds as soon as submassive PE is suspected
- Stop heparin infusion when issuing the order to administer fibrinolysis
- Infuse recombinant tPA 100 mg over a 2-hour period with careful monitoring for bleeding complications, including neurological checks every 15 minutes during the infusion
- Obtain immediate post–fibrinolytic infusion aPTT
- After the fibrinolytic infusion has concluded, do not restart heparin until the aPTT is <80 seconds