

老人急重症醫療之 陷阱特殊考量與處置 (風險、機轉、用藥)

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Objective

- Understand some of the pitfalls in the emergency and critical care of the elderly

The differential diagnoses

- Remember “**MIDSO**”
 - **M**: Metabolic (electrolytes, glucose, endocrine)
 - **I**: Infection / inflammation
 - **D**: Drugs / drunk
 - **S**: Structural lesions
 - **O**: O2, others (e.g. psychi, seizure...)

Falls

- Very common in the elderly
- Most falls in the elderly are the result of their accumulated defects and diseases
- Hint: Look for...
 - M: electrolyte imbalance, glucose
 - I: occult infection (UTI)
 - D: drugs / drunk
 - S: stroke, chronic SDH
 - O: elder abuse

Recurrent injuries

- Elderly patients tend to have recurrent injuries
- Hint: Look for underlying risk factors...
 - Chronic illnesses
 - Functional impairment
 - Injuries to femur, pelvis, and C-spine
 - Elder abuse

Gerald McGwin, Jr. Arch Surg. 2001;136:197-203

Elder abuse is not uncommon!

- If one does not look for abuse in elderly victims, it will generally not be detected or prevented from recurring
 - Elder abuse is relatively common and often unreported and undiagnosed

Shock or not ?

- **70kg, elderly male**

<u>HR</u>	<u>BP</u>	<u>Cardiac output</u>
150/min	60/40	1.8L/min
80/min	100/70	5.0L/min
110/min	120/80	3.4L/min

Shock

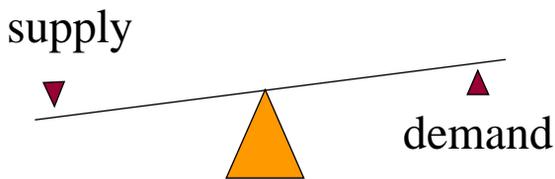
- Definition ?

- Answer: ***Inadequate tissue perfusion***

Inadequate tissue perfusion

1. Decreased tissue perfusion
2. Increased tissue metabolic demand

Shock: Inadequate Tissue Perfusion



供不應求

Shock in the elderly

- Elderly patients will go from normo-tensive to hypotensive in a heartbeat
- Hint:
 - Profound, life-threatening hypovolemia may occur in the setting of relatively normal BP
 - BP \neq Perfusion

Shock signs

- Hypotension:
 - SBP < 90 mmHg
 - Drop in BP > 40 mmHg
- Conscious disturbance
- Oliguria (<0.5 cc/kg/h)
- Metabolic (lactic) acidosis

Urine output



Watch urine output

- Acute oliguric renal failure is probably best prevented
 - by maintaining as high urine output as possible (without using diuretics) and
 - by avoiding nephrotoxic drugs



Occult blood loss

- Blood loss in the elderly often overlooked!
- Hint: Look for blood loss into...
 - Soft tissue spaces
 - Subcutaneous
 - Retroperitoneal
 - Pelvic fracture = massive bleeding

Pelvic wrap



Preload monitoring

- Elderly patients respond poorly to too much or too little fluid (narrow therapeutic window)
- Hint:
 - Adequate *preload monitoring* (CVP or PCWP)
 - The best guide to continued fluid therapy at the bedside is the *hemodynamic response* to the previous fluid boluses

Heat loss

- Hypothermia can occur quickly and easily in the elderly – reduced subcutaneous fat
- Hint:
 - ABCDE: Environmental control
- Caution:
 - Hypermetabolism to correct hypothermia can put great stress on the cardiovascular system

Acute confusion of the elderly

- Pitfall: assumption that confusion in an elderly patient is due to senility
- Hint: Senility \neq confusion; should look for...
 - M: Metabolic (electrolytes, glucose, endocrine)
 - I: Infection / inflammation
 - D: Drugs / drunk
 - S: Structural lesions
 - O: O₂, others (e.g. psychi, seizure...)
- Caution: tranquilizers to control restlessness
 - Try O₂ and look for causes of hypoxia

Sedate cautiously!

- Use of tranquilizers to control restlessness in elderly patients
 - Try O₂
 - Look for causes of hypoxia

Bones of the elderly are brittle

- Osteoporosis and reduced activity of advanced age combine to increase bone fragility and the incidence of severity of fractures
- Hint: Look for occult fractures...
 - Hip bone
 - Shin bone
 - Pelvis

Fracture with “normal” radiograph

- Occult fractures:
 - Initial x-ray can be “normal”
 - Femoral neck fracture: pain can be in the knee...
 - Anterior cartilaginous rib fractures not visible
 - Up to 50% bony rib fractures not visible on CXR
- Hint:
 - Normal radiograph \neq no fracture
 - Bed rest and give instructions to return
 - Confirm with tomography, CT, nuclear scan or MRI

婦車禍肋骨斷三根 X光照不出 車禍喊胸痛 醫院不察 轉診救一命

2008年08月07日 蘋果日報

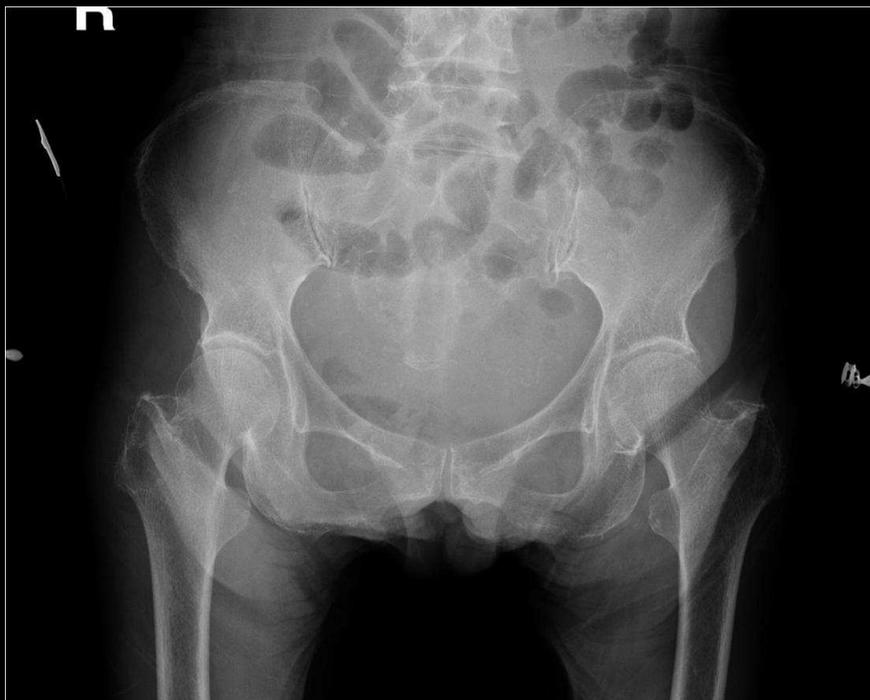


黃婦拿聯合醫院所拍的X光片不滿表示，醫師診斷太大意，肋骨斷或沒斷差很多，不該輕忽病人的疼痛。周昭平攝 圖片：1/1

【周昭平、林聰勝／高雄報導】高雄一名黃姓婦人，上月底騎車不慎出車禍，被送到高雄市立聯合醫院大同院區急救，當時醫師檢視X光片發現無異狀，診斷為胸部挫傷，但黃婦隔日因胸悶到高雄長庚醫院急診，赫然發現右胸肋骨竟斷了三根，還引發氣胸，趕緊插管治療才撿回一命。黃婦批，骨頭斷和沒斷差很多，醫師太誇張了！大同院區回應，黃婦是線性骨折不易看出，當時診斷沒疏失。

醫療爭議

五十六歲的黃姓婦人說，事發當天下午約兩時三十分，她被送到聯合醫院大同院區急診室，當時胸部痛得受不了，沒想到醫師還要她忍痛坐起拍X光片，胸部正面和右側各拍了一張，但急診醫師說肋骨沒有斷裂，還說胸部撞到本來就會痛，留院觀察六小時後就要她出院，還說只需三天後回診，但當晚她在家直感胸悶，女兒更是擔心得整晚把手放在她的左胸口，就是擔心母親一時沒了氣。

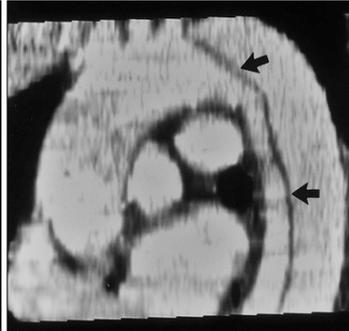
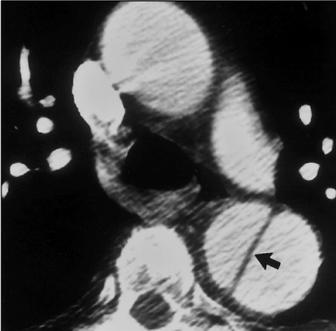


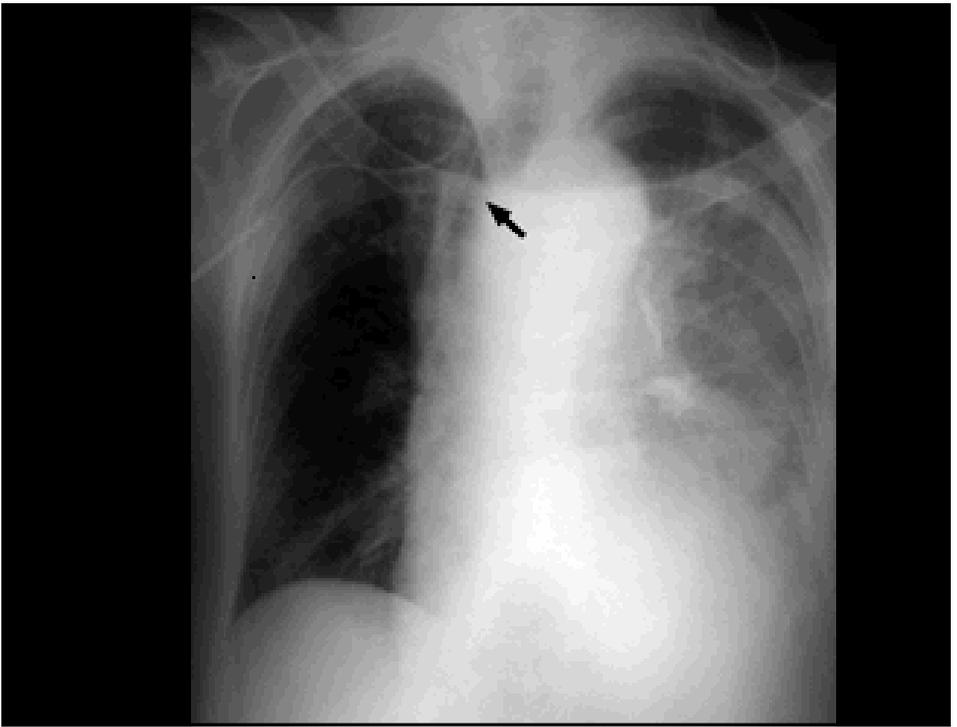
Day 4



The aorta of the elderly is brittle

- Blunt aortic injury may occur in the elderly in the absence of conventional s/s





Aortic injury/ dissection

- Plain chest radiograph:
 - Widening of mediastinum
 - Pleural effusion
 - Pleural capping
 - Depression of the left mainstem bronchus
 - Loss of the paratracheal stripe
 - Tracheal deviation
 - NG tube deviation
 - Blurring of aortic knob
 - Displacement of intimal calcification >5 mm (calcium sign)

Silent MI

- Beware of “silent” myocardial infarctions
- Hint:
 - The only symptoms might be mild hypotension or dyspnea without chest pain
 - Serial ECGs and cardiac markers

Sudden apnea in the elderly

- Ventilatory failure and respiratory arrest may occur suddenly due to inadequate ventilatory reserve
- Hint:
 - On monitor(s) : ECG, SpO₂, EtCO₂
 - Keep family at bedside
 - Check ABGs if needed

Malnutrition

- Many elderly individuals, even those who are obese, have subclinical malnutrition.
- Hint:
 - Chronic malnutrition is relatively common and often undiagnosed
 - The daily allowance for protein of 0.8 g/kg/day is probably inadequate for traumatized older patients

Survey major organ systems

- The pre-OP workup of elderly patients should be designed to discover the presence and severity of all major organ dysfunctions
- Hint:
 - Blood, urine, stool
 - Chest radiographs
 - ECG, cardiac markers
 - Endocrine
 - Bleeding profiles

Adverse drug reactions are common

- A little medication goes a long way with the elderly
- Hint:
 - Sedative/hypnotics/narcotics/antihistamine → overdose
 - Aspirin, NSAIDs → UGI bleeding
 - Aminoglycosides, NSAIDs, radiocontrast → nephrotoxicity
 - OHA → hypoglycemia

Misleading minor problem

- Distracting pains: abdominal pain, chest pain, fractures
- Hint: look for principal underlying problem
 - Stroke, myocardial infarction, or seizures may result in falls or motor vehicle crashes
- Hint: look for co-morbidities
 - Underestimating and under-managing COPD, CAD, CHF, bedsores, easy-choking, etc. may result in preventable morbidity/mortality

Liver and Spleen

- When to suspect liver or spleen injury?
 - Fracture of lower ribs (# 9-12)



Abdominal signs in the elderly

- The sensitivity of abdominal exam in elderly patients is not much better than flipping a coin . . .
- Hint:
 - Reliance on the abdominal examination will often lead to missed abdominal injuries

ICH can be “silent”

- Cortical atrophy, common in the elderly, may act to delay the clinical manifestations of serious intracranial hemorrhage
- Hint:
 - Elderly patient who is still awake after head trauma can have a large SDH or ICH

Avoid prolonged immobilization

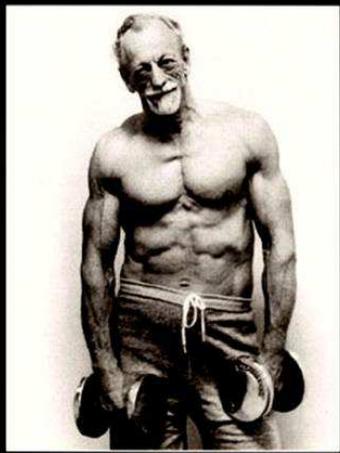
- Prolonged immobilization → weakness, osteoporosis, muscle wasting
- Hint:
 - Avoid optimal reduction of fracture fragments at the expense of mobility

Anemia in elderly is abnormal

- Normal hematocrit is essential to maintain adequate O₂ delivery because of subnormal cardiac or pulmonary functions
- Hint:
 - Keep Hct > 30 or Hb > 10 in critical patients

Take home message

- Elderly ≠ old adults
- A.A.D.
 - Always assume **atypical** presentation
 - Always suspect elder **abuse**
 - Always assume the most **deadly** diagnoses



Growing Old Is Not For Sissies

Thank You

References:

1. Robert F Wilson: Handbook of Trauma
2. William C Wilson: TRAUMA (Emergency Resuscitation, Perioperative Anesthesia, Surgical Management)
3. Gerald McGwin: Arch Surg. 2001;136:197-203
4. Dicker and Mackersie: Pitfalls in the Management of the Trauma Patient