

## **TRAVERSING: TRansfer of thoracic Aortic Vascular Emergencies to Regional Specialist INstitutes Group**

Thank you for agreeing to participate in this Delphi research study to optimise the pathway of care for patients requiring transfer to specialist centres that can provide definitive management of acute aortic syndrome.

The purpose of this project is to develop consensus on the transfer of patients with clinically suspected or confirmed acute aortic syndrome to specialist centres for definitive management.

It will complement 2 major national initiatives. The first is the NHS England commissioning of dedicated Adult Critical Care Transfer Services, which are developing rapidly as a result of the COVID-19 pandemic. These services will deliver high quality consultant-led care throughout the referral and transfer process for all critically ill patients requiring transfer between hospitals and will lead to significant changes in this area of critical care in England.

The second related national initiative is the Emergency Aortic Dissection Pathway toolkit. This aims to provide clinicians with recommendations to improve the care and outcomes of patients with aortic dissection (including intra-mural haematoma). Its scope covers the emergency, acute aortic dissection pathway from confirmed diagnosis until treatment but excludes the elective pathway and long-term management of chronic aortic dissection.

The scope of this Delphi study will be to examine the pathway of patients with confirmed acute aortic syndrome from diagnosis until their arrival at the environment of definitive specialist care. The initial management and factors influencing the subsequent transfer process will be assessed in the questions below. Responses to each stem should be in the form of a Likert scale (where X=outside area of expertise; 1=strongly disagree; 2=disagree; 3=agree; 4=strongly agree) and there is also a free text facility for each question. When responding, please consider acute aortic syndrome as encompassing any aortic dissection (either type A or type B), intra-mural haematoma and penetrating aortic ulcers.

**1. What is the appropriate level/grade of clinician who should make the call to the specialist centre that can provide definitive management of patients with acute aortic syndrome requesting advice/requiring transfer of a patient? For all options, please assume that the clinician has seen and assessed the patient**

- a) Must be assessed by local cardiologist/vascular surgeon (registrar or equivalent/consultant) prior to discussion
- b) Consultant
- c) Registrar or equivalent
- d) Any grade of doctor
- e) Emergency care practitioner
- f) Nurse/paramedic from ambulance
- g) Specialist allied healthcare professional (e.g. clinical nurse specialist)
- h) No discussion – transfer to specialist centre

Additional comments:

**2. What is the appropriate level/grade of clinician who should receive the call and arrange admission at the specialist centre that can provide definitive management of patients with acute aortic syndrome?**

- a) Consultant
- b) Registrar or equivalent
- c) Any grade of doctor
- d) Specialist allied healthcare professional (e.g. clinical nurse specialist)
- e) No discussion – transfer to specialist centre

Additional comments:

**3. Should a patient bypass a local ED (non-aortic centre) to be taken to a specialist centre that can provide definitive management of patients with acute aortic syndrome in any of the following clinical situations?**

- a) Paramedics consider acute aortic syndrome a likely diagnosis
- b) GP/doctor on scene considers acute aortic syndrome a likely diagnosis
- c) Only if specialist centre has an ED

- d) No, you should never bypass a local hospital's ED

Additional comments:

**4. What clinical features would make you consider bypassing a local hospital's ED (non-aortic centre)?**

- a) You should never bypass ED
- b) Patient has typical new symptoms suggesting acute aortic syndrome with no ST elevation on ECG
- c) Patient has typical new symptoms suggesting acute aortic syndrome and pre-existing aortic disease
- d) Patient has typical new symptoms suggesting acute aortic syndrome and family history of aortic disease
- e) Patient has typical new symptoms suggesting acute aortic syndrome and has had previous aortic intervention

Additional comments:

**5. What criteria are required prior to considering transfer to the specialist centre? Please assume that an ED bypass is not occurring**

- a) Assessing clinician considers symptoms and signs of acute aortic syndrome are likely/possible
- b) Pre-existing aortic disease with typical new symptoms suggesting acute aortic syndrome
- c) Known pregnancy and typical new symptoms suggesting acute aortic syndrome
- d) Raised D-dimer and typical new symptoms suggesting acute aortic syndrome
- e) Ultrasound in ED with typical new symptoms suggesting acute aortic syndrome
- f) Echocardiogram
- g) CT scan of whole aorta
- h) CT scan of whole aorta reported by a radiologist
- i) ECG gated CT scan of whole aorta

Additional comments:

**6. At what age (years) would a transfer for acute aortic syndrome be inappropriate?**

- a) No age limit – always discuss with specialist centre
- b)  $\geq 70$
- c)  $\geq 80$
- d)  $\geq 85$
- e)  $\geq 90$

Additional comments:

**7. What degree of comorbidity would be appropriate for transfer to a specialist centre that can provide definitive management of patients with acute aortic syndrome?**

- a) No or minimal systemic disease
- b) Moderate systemic disease
- c) Severe systemic disease
- d) Life-threatening systemic disease
- e) Degree of comorbidity is irrelevant

Additional comments:

**8. What degree of functional capacity prior to a diagnosis of acute aortic syndrome would be deemed appropriate for transfer to a specialist centre that can provide definitive management of patients with acute aortic syndrome?**

- a) Independent
- b) Needs some help with daily living
- c) Dependent on relatives/carers for daily living
- d) Chronic organ failure requiring support (e.g. dialysis/heart failure/home oxygen)
- e) Institutional care for physical illness
- f) Institutional care for mental illness
- g) Always discuss with specialist centre

Additional comments:

**9. What patient condition(s) would be deemed appropriate for transfer?**

- a) Alert and talking
- b) Obeying commands
- c) Fluctuating consciousness
- d) Shock requiring ongoing intervention
- e) Unconscious/intubated
- f) Cardiac arrest in current episode

Additional comments:

**10. Which investigations should be completed in the initial assessment of a patient with confirmed acute aortic syndrome?**

- a) FBC
- b) U&Es
- c) Cross-match
- d) Arterial/venous blood gas measurement
- e) ECG
- f) Chest X-ray
- g) Echocardiogram
- h) CT scan of whole aorta
- i) ECG gated CT scan of whole aorta
- j) None of the above – just transfer the patient

Additional comments:

**11. What treatment(s) is/are reasonable to expect to deliver to a patient during transfer?**

- a) Analgesia
- b) Blood pressure support (pharmacological or IV fluids)
- c) Blood pressure reduction (pharmacological)
- d) Blood transfusion

- e) Airway should be managed with appropriate expertise (including ability to intubate if required)
- f) Nothing – just get the patient to the specialist centre as quickly as possible

Additional comments:

### **12. What patient monitoring should be reasonably expected during transfer?**

- a) None
- b) Intermittent vital sign monitoring (pulse, blood pressure, temperature, saturations, respiratory rate, conscious level)
- c) Continuous vital sign monitoring
- d) Invasive blood pressure monitoring (arterial line)
- e) Central venous pressure monitoring (central line)

Additional comments:

### **13. What if a patient has a cardiac arrest during transfer?**

- a) Manage as per Basic Life Support (BLS) principles
- b) Manage as per Advanced Life Support principles (as BLS plus airway/drugs/defibrillation if indicated)
- c) Manage as per the discussion with specialist centre and patient that occurred prior to transfer
- d) Palliate – chance of survival is extremely low

Additional comments:

### **14. How should the patient be transferred?**

- a) Category 1 Ambulance – life-threatening ( $\leq 7$  minutes response time)
- b) Category 2 Ambulance – time critical ( $\leq 18$  minutes mean response time)
- c) Category 3 Ambulance – urgent ( $\leq 120$  minutes mean response time)
- d) Category 4 Ambulance – non-urgent ( $\leq 180$  minutes response time)

- e) Adult Critical Care Transfer Service

Additional comments:

**15. Which personnel should accompany the patient during transfer?**

- a) Ambulance care assistant/technician
- b) Paramedics
- c) Paramedics and nurse
- d) Paramedics and doctor
- e) Transfer-trained nurse
- f) Transfer-trained doctor
- g) Adult Critical Care Transfer Service
- h) No conditions – just send with whomever comes with the transfer vehicle

Additional comments:

**16. What facility/facilities should be available at the specialist centre providing definitive management of patients with acute aortic syndrome?**

- a) Vascular/cardiology/cardiac surgery bed
- b) ED resuscitation bed
- c) Critical Care bed (Level 2 or 3 as appropriate)
- d) Access to CT scan and radiologist
- e) Access to ECG gated CT scan
- f) Emergency endovascular facility with 24/7 on call team (including IR consultant)
- g) Operating theatre
- h) Operating theatre with enhanced imaging facilities and ability to perform endovascular interventions
- i) No specific conditions required – just transfer to specialist centre

Additional comments:

**17. What should be the time frame for referral following diagnosis?**

- a) Less than 30 minutes
- b) 30-60 minutes
- c) 1-4 hours
- d) 4-12 hours

Additional comments:

**18. What should be the time frame for agreed patient transfer commencing following diagnosis?**

- a) Less than 30 minutes
- b) 30-60 minutes
- c) 1-4 hours
- d) 4-12 hours
- e) 12-24 hours
- f)  $\geq 24$  hours

Additional comments:

**19. What should be the time frame for arrival at the specialist centre following diagnosis?**

- a) Less than 30 minutes
- b) 30-60 minutes
- c) 1-4 hours
- d) 4-12 hours
- e) 12-24 hours
- f)  $\geq 24$  hours

Additional comments: