Cardiogenic Shock Pathway

Written in collaboration between the Cardiac and South East Wales Critical Care Networks, and the Cardiff and Vale University Hospital Cardiac Services Directorate (tertiary centre)

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This pathway/guidance is for patients with cardiogenic shock in the presence of ST elevation and ST depression.

Mortality from ischaemic cardiogenic shock without revascularisation is 90% falling to approximately 45% with prompt revascularisation. It is crucial that ischaemic cardiogenic shock is identified and treated immediately to improve outcome. This may require services unavailable in a District General Hospital (DGH).

Cardiogenic Shock is characterised by a shocked state due to cardiac (pump) failure with the following clinical features:

- sustained systolic blood pressure < 90mmHg
- inadequate tissue perfusion with cool mottled peripheries
- urine output < 0.5mls/Kg/hr
- rising lactate > 2mmol/l

Ischaemic cardiogenic shock is present in the setting of acute ST segment changes. The differential cardiac diagnosis includes:

- cardiac tamponade
- myocarditis
- ventricular septal defect
- cardiac aneurysm rupture
- acute valvular defect
- pulmonary embolism
- rhythm abnormalities

Echocardiography may be required as an emergency.

To facilitate prompt treatment for patients presenting to a DGH with cardiogenic shock, the case should first be discussed with a local consultant cardiologist. If tertiary cardiological management is felt appropriate, the local
consultant cardiologist will liaise directly with the on call interventional cardiology consultant at Cardiff and Vale University Health Board (C&VUHB).

If a local cardiologist is unavailable, e.g. after 17:00hrs week days and at weekends, then the medical consultant responsible should contact the tertiary interventional cardiologist directly. In the event of any difficulties contacting the Interventional cardiologist, the general on call cardiologist at C&VUHB should be contacted. They will liaise with their interventional colleague to discuss the case.

A spontaneously breathing patient accepted for intervention should be transferred directly to the cardiac catheter laboratory. If this is not possible, they will be accepted initially to coronary care (CCU) in the University Hospital of Wales (UHW).

Ventilated patients, once accepted by the Interventionist for catheterisation, need to be discussed with the C&VUHB critical care consultant on bleep 5490. The Interventional cardiologist will liaise with their Intensivist colleague and arrange for the patient to go directly to the catheter lab (in the vast majority of cases), after which they will be transferred to Intensive Care. The Critical Care consultant in the DGH needs to hand over care of the patient to the UHW Intensivist.

Advice may also be given regarding immediate management, including early instigation of mechanical support if available at the DGH site and/or intra-aortic balloon pump insertion (IABP), prior to transfer.

Patients presenting with non ischaemic cardiogenic shock may also be discussed. Depending on aetiology, mechanical support/LV assist/transplantation may be appropriate. This may require discussion with a cardiac transplantation centre.

Patients should return to the referring Health Board when tertiary level care is no longer required. For those patients requiring ongoing critical care there should be discussion between Intensive Care consultants to determine the optimal time for repatriation. The DGH Cardiologist/Physician involved in the patient’s ongoing care should also be contacted by the UHW Cardiology team. Good handover is essential particularly in these often complex cases.

In general repatriations should take precedence over elective services.

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Ischaemic Cardiogenic Shock Pathway – from DGH to Catheter Laboratory and Back

Patient presents to DGH with acute cardiogenic shock with ST elevation or depression

- **Yes**
  - Local cardiologist available?
    - **Yes**
      - Is the patient suitable for tertiary cardiological intervention?
        - **Yes**
          - DGH cardiologist (or medical consultant responsible) discusses with Interventional cardiologist on-call via UHW Switchboard 02920 747747
          - If unable to contact, ask for general cardiologist on-call 02920 747747
        - **No**
          - Manage locally
    - **No**
      - Discuss with medical consultant responsible
- **No**
  - Patient presenting to DGH with acute cardiogenic shock with ST elevation or depression

Interventional Cardiologist to liaise with consultant Intensivist UHW [bleep 5490] to arrange level 3 bed post-catheterisation. DGH critical care consultant hands over to UHW Intensivist.

Patient breathing spontaneously?

- **Yes**
  - Patient accepted for intervention?
    - **Yes**
      - Transfer to UHW ICU
    - **No**
      - Further local management
- **No**
  - Interventions to UHW ICU

Step down to CCU UHW

Repatriate to DGH following handover to local Intensivist if level 3 care, and cardiologist/physician taking over patient’s care