Patient selection for VV ECMO

Determine **risk score** by adding the scores from diagnostic group ① and clinical modifier ②
Ensure no absolute contraindication ③ present
Use chart ④ to establish eligibility and expected outcome for VV ECMO support

**Diagnostic group**

**Favourable Diagnostic Categories (Score =1)**
- Community acquired pneumonia (infective cause)
- Aspiration pneumonitis
- Status Asthmaticus
- Primary graft dysfunction following lung transplant within 7 days
- Adult respiratory distress syndrome [ARDS] from primary pulmonary causes (excluding trauma)

**High Risk Diagnostic Categories (Score =2)**
- Necrotising pneumonia
- Pulmonary vasculitis (Goodpasture’s, ANCA-associated, other autoimmune)
- Lung transplant recipient 7-30 days post transplant
- Traumatic injuries
  - Moderate TBI with hypoxia/brain injury to allow neuro assessment
  - Bronchial tear with air leak and hypoxia
  - ARDS from direct chest trauma

**Unfavourable Diagnostic Categories (Score =3)**
- Invasive aspergillosis
- Pneumocystis jirovecii pneumonia
- ARDS from non-pulmonary cause (e.g. burns, pancreatitis)
- Lung transplant recipients >30 days and suitable for re-transplantation (see also bridge to transplant)

**Clinical modifier**

Score chronic co-morbidities and acute clinical state

**Chronic - one or more present (Score +1)**
- Peripheral vascular disease (symptomatic, revascularised or amputation)
- Previously known ischaemic heart disease or prior revascularisation
- Prior valve surgery, CABG or aortic surgery
- Moderate COPD (GOLD Stage II, FEV1 50-80%)
- Chronic renal failure stage 3 or 4 CKD (eGFR 60-15)
- Chronic liver disease
- Long-term immunosuppression

**Acute - one or more present (Score +1)**
- Lactate ≥10
- Noradrenaline >1 mcg/KG/min
- AST or ALT > 1000, or, INR >3.0
- Anuria >4 hours

**Absolute contraindications**

**Lung disease**
- Severe chronic lung disease (see bridge to transplant)
- Acute/subacute pulmonary fibrosis likely cause of respiratory failure
- Previous known/treated SLE, extra-articular Rheumatoid Arthritis, Scleroderma, Dermatomyositis, Sarcoidosis
- Clinical course or pathological investigations suggestive of irreversible process (e.g. bleomycin lung injury)
- Obliterative bronchiolitis likely cause of respiratory failure
- Graft versus host lung disease

**Patient profile**
- Age >75
- Bone marrow transplant recipients
- Terminal illness or non-treatable malignancy
- Liver cirrhosis Child-Pugh B or C or jaundice/ascites/encephalopathy
- Severe brain injury
- Severe cardiac disease, cardiomyopathy (VAD/ inotropes)
- Chronic renal failure CKD 5 or dialysis

**Acute condition**
- Pulmonary oedema for LVF - consider VA ECMO
- Septic shock with hypoxia predominant presentation rather than pulmonary infiltrates
- Advanced microcirculatory failure with severe mottling or established purpura

**Eligibility chart**

The chart indicates eligibility and expected outcome for VV ECMO according to patient age and risk score (1-5) which is the diagnostic group 1, 2 or 3 plus presence of acute (+1) and/or chronic modifiers (+1).

- **GREEN** Good expected outcome
- **YELLOW** Uncertain expected outcome
- **RED** Poor expected outcome
- **BLACK** Negligible benefit

Comments: ECMO initiation is only considered if in keeping with known patient wishes or that of the patient’s medical treatment decision maker (MTDM)