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Initial experience on percutaneous ECMO implantation in Uzbekistan

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Aim: Extracorporeal membrane oxygenation (ECMO) is considered a short-term life support device helping the patients to survive from critical conditions. We report our initial experience in few numbers of cases and examine the outcomes of venoarterial ECMO support established through percutaneous cannulation of the femoral vessels in patients after postcardiotomy syndrome following coronary artery bypass surgery.

Methods: During a year, at Coronary Surgery Unit, there are four patients undergoing percutaneous venoarterial ECMO "Bio Console 560" device provided by Medtronic USA. All patients are male and have severe diffuse coronary artery disease and depressed left ventricle function. Triple vessel coronary artery bypass grafting was performed in all patients according to the coronary lesions. The patients developed intraoperative acute heart failure and therefore it was decided to switch the patients on ECMO. The implantation technique employed the Seldinger's technique via ultrasound guided wire 0.038 insertion for both arterial and venous cannula. 21 Fr arterial cannula tip is in superficial femoral artery and the 25 Fr venous cannula is guided to the right atrium achieving to the level of superior vena cava proved by transesophageal echocardiography. Whenever possible, anti-grade perfusion of the ipsilateral lower limb was performed through percutaneous catheterization of the superficial femoral artery. The chest left closed from the operation theatre to reduce the postoperative bleeding complications.

Results: The pump flow began with 4.5 l/min, pump index 2.3 l/min and the frequency 2040 rmp. ECMO support was maintained for a mean of 3.2 days. Activated clotting time level was maintained at 180-200 sec., while the chest tubes discharged around daily 800-1000 ml. Two patients were successfully (50%) weaned from the device and survived. Two (50%) cases were observed early mortality: the 1st patient had developed multi organ failure after weaning the device and the 2nd had developed late pulmonary thromboembolism. The mortality was not ECMO connection or any other vascular complications related. Two patients suffered early complications, namely one for wound infection, another for bleeding at cannula site which were managed properly on time. No long-term vascular complications were noted.

Conclusion: Percutaneous femoral cannulation for ECMO support remains a prompt approach for establishing extracorporeal circulatory support in acute cardiopulmonary failure when conditions for performing femoral vessel cut down are not optimal. However, vascular complications might be frequent and carry a significant morbidity and mortality, although, it didn't happen in our few series of cases.

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