

***Registry of First Egyptian Center for extra-Corporeal-membrane-  
Oxygenation "ECMO"***

***Ahmed saeid; Alia Abd El-Fattah; Akram Abd El-Bary;***

***Mohamed Khaled; Wael Samy.***

***Abstract***

***Background:*** The mainstay of modern intensive care medicine is to guarantee the function of the cardiorespiratory system. Extracorporeal membrane oxygenation (ECMO) represents nowadays the only therapy capable of completely replacing these vital functions.

***Aim of the work:*** to document and analyze the data and patients who received ECMO support in the critical care department -Cairo University from 2014 to 2017.

***Methods:*** Twenty-seven patients received ECMO support were enrolled in our study. Twenty three patients received Veno-venous (V-V) ECMO, four patients received Veno-arterial (V-A) ECMO and four patients received hybrid support. All patients were subjected to full history taking and clinical examination before ECMO, Full blood chemistry, blood gases, Chest X ray and Echocardiography before and after connection to ECMO. All hemodynamic variables, ECMO variables and complications were collected and analyzed.

***Results:*** The overall survival rate in our patients was 29.6%, mortality during ECMO support was 63% and mortality after decannulation was 7.4%. The average duration of ECMO run was 14.6 day and the average length of ICU stay was 20.4 day. The average duration of V-A ECMO run was 4.5 day. The average duration of V-V ECMO run was 16.4 day. In our study, we used V-V ECMO as a respiratory support for total 23 patients with ARDS due to either bacterial infection, viral infection, aspiration, trauma or toxins. The overall survival rate in our V-V group was 35 %. The best outcome in V-V group was observed in patients with ARDS due to Trauma and Poisoning with survival rate of 100% and 50% respectively. Our study demonstrated statistically significant difference in the duration of pre-ECMO ventilation, AKI before ECMO and Changing of oxygenator during ECMO between survivors and non-survivors in the V-V group. Septic shock was the commonest cause of

death among patients who received V-V ECMO support. In our study, we used V-A ECMO as a mechanical circulatory support for total 4 patients with cardiogenic shock. In our study there was statistically significant difference in patients before and after initiation of V-A ECMO support regarding Mean arterial pressure [ $40 \pm 14.1$  before,  $62.5 \pm 2.88$  after with P value 0.042] and base deficit [ $-10.6 \pm 4.2$  before,  $-6.3 \pm 7.4$  after with P value 0.038]. Echocardiography plays an important role in the management of V-A ECMO patients; it is useful in patient assessment, cannulation, detecting complications during ECMO run and detects the possibility of weaning of ECMO support.

**Conclusion:** ECMO has the capability to support cardiorespiratory function temporarily, but it is not a cure for the underlying disease. V-V ECMO can provide respiratory support to patients with ARDS and avoid the deleterious effects of mechanical ventilation. V-A ECMO can provide circulatory support to patients with cardiogenic shock and decrease inotropic and vasopressors requirements.

**Keywords:** ECMO , Veno-venous , Veno-arterial , Cardiorespiratory , ARDS ,

Cardiogenic shock.