Introduction:
Mortality during Extracorporeal Membrane Oxygenation (ECMO) settles around 35% and the occurrence of bleeding during ECMO is associated with a high mortality rate. However, cause-specific mortality is rarely reported, probably due to the difficulty of its classification. The purpose of the study was to evaluate the agreement between two expert ICU physician in the classification of the cause of death of patients supported with ECMO for either respiratory or cardiac support

Methods:
Two Intensive Care Unit (ICU) expert staff physicians independently reviewed the entire medical records of all ECMO patients who died before ICU discharge from January 2011 to September 2019 at Fondazione IRCCS Ca’ Granda, Milan. They were asked to choose the cause of patient’s death among six categories. In case of disagreement, a third expert adjudicated the case. The two reviewers were also asked whether, in their opinion, bleeding during the last 24 hours contributed to death. ELSO definition of major bleeding [1] during the last 24 hours was also recorded for each patient

Results:
Two-hundred and two patients were supported with ECMO of whom 70 (34.6%) died. Most of these patients (N=53, 75.7%) died during ECMO. Interrater agreement for cause-specific mortality between the two expert physicians was substantial (k 0.71, SE 0.07, p<0.01) Of the 14 discordant cases 6 were categorized as refractory respiratory failure and 4 as multiorgan failure and septic shock respectively. The distribution of cause-specific mortality is shown in Figure 1. Major bleeding (ELSO) was present in 27 (38.6%) patients, only in 9 (33.3%) of them bleeding contributed to death according to the reviewers

Conclusion:
The most common cause of death during ECMO in our cohort was multiorgan failure with substantial agreement between the two reviewers. Apparently, major bleeding contributed to death only in a small proportion of patients

References:

Image :
Causes of death during ECMO

Source: 2011-2019 Data from 70 patients (Fondazione IRCCS Ca’ Granda - Policlinico, Milan)

Causes of death during ECMO