

## 4th Annual ELSO-SWAC Conference Proceedings

# ECMO in special cases

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Survival of patients with malignancy over the last 30 years has continually improved due to advancements in aggressive chemotherapeutic regimens as well as supportive measures toward treatment and prevention of infection.<sup>1,2</sup> Even though cancer remains a significant cause of mortality in children, 5-year survival for childhood cancers, including hematologic malignancies and solid tumors, is greater than 80%. In these children, critical illness occurs either as a result of their malignancies and/or complications from treatment. Given improvements in survival, a more aggressive approach to the management of these complications in pediatric patients with malignancies has been encouraged, which has enlightened the medical community to the use of extracorporeal life support (ECLS) in this complex population. Evidence of this new approach was reported in 2009 by Gow et al.<sup>3</sup> when a survey of ECLS centers regarding utilization of ECLS for patients with malignancy found that 95% of respondent ECLS centers felt that malignancy was not a contraindication to ECLS. This is further supported by the Extracorporeal Life Support Organization (ELSO) registry, which documents that, since 1997, the use of ECLS, including extracorporeal membrane oxygenation (ECMO) for pediatric cancer patients has been steadily rising. Up until 2007, pediatric patients with malignancy comprised 0.5% of all ECLS patients. Limitation in the use of ECLS for patients with cancer was most likely influenced by cancer-related mortality as well as the ideology of ECLS being a support modality offered only to acutely ill "healthy" patients. Since 2009, a number of reports describing ECLS use for patients with malignancy have been published, implying that its use is increasing in this population most likely due to noted improved oncologic survival compounded by more widespread ECLS use in complex patient populations. Utilization of this support modality in pediatric malignancy, although still low compared with

other populations, is increasing. In 2008–2012, the ELSO registry documented 178 patients with malignancy who received ECLS, which equates to 1% and a doubling of utilization compared with that reported previously. Although there is still a small portion of ECLS patients, education regarding the use

of this modality of support for patients with malignancy will likely lead to further increases in utilization.<sup>4,5</sup>

Keywords: cancer, ECLS, pediatric, hematologic malignancy

## REFERENCES

1. Murphy SL, Xu J, Kochanek KD. Deaths: Final data for 2010. *Nat Vital Stat Rep*. 2013;61:1–117.
2. Howlader N, Noone AM, Krapcho M, Garshell J, Neyman N, Altekruse SF, Kosary CL, Yu M, Ruhl J, Tatalovich Z, Cho H, Mariotto A, Lewis DR, Chen HS, Feuer EJ, Cronin KA, *SEER Cancer Statistics Review, 1975–2010*. Available from: [http://seer.cancer.gov/csr/1975\\_2010](http://seer.cancer.gov/csr/1975_2010) [Accessed July 2014].
3. Gow KW, Heiss KF, Wulkan ML, Katzenstein HM, Rosenberg ES, Heard ML, Rycus PT, Fortenberry JD. Extracorporeal life support for support of children with malignancy and respiratory or cardiac failure: The extracorporeal life support experience. *Crit Care Med*. 2009;37:1308–1316.
4. Armijo-Garcia V, Froehlich CD, Carrillo S, Gelfond J, Meyer AD, Paden ML. Outcomes of extracorporeal life support for children with malignancy: A report from the Extracorporeal Life Support Organization (ELSO) registry [abstract]. In: *Proceedings of the 24th Annual ELSO Meeting Program*, Philadelphia, PA; 2012 April 13–15.
5. Carrillo SA, Armijo-Garcia V, Froehlich C, Paden ML. Complication-related outcomes in children with malignancy and respiratory failure requiring extracorporeal life support [abstract]. In: *Proceedings of International Course on ECMO and Euro ELSO 2014*, Paris, France; 2014 May 22–14.