

A QUARTER CENTURY RETROSPECTIVE REVIEW OF NEWBORN CDH ADMITTED TO A SINGLE ECMO CENTRE

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Aim: A retrospective review of management and outcomes for newborns with CDH admitted to a surgical NICU since the commencement of a Paediatric ECMO Service to evaluate trends in therapy and outcome.

Methods: A prospectively held local database including datasets submitted to the CDH Study Group Registry were interrogated. Where extra data were needed, case notes were analysed. Late presenters and eventrations were excluded. Trends in diagnosis, analysis of severity, survival, ECMO use, and other therapies were investigated by analysing results in five 5-yearly blocks (1992-1996, 1997-2001, 2002-2006, 2007-2011, 2012-2016).

Results: 247 newborns with CDH were admitted over the study period. Overall survival to discharge or repatriation was 76% (Table 1). Overall antenatal diagnosis rate was 57%, but there has been a gradual increase. Use of iNO increased from 11% to 77%. Similar proportions of neonates are undergoing surgery. Total survival has not changed, although patch use has gradually increased suggesting increasing severity. 56 neonates received ECMO support with overall survival of 54%. There was a trend to increased ECMO use. 27 admissions were referred from non-catchment regions for ECMO (21 received ECMO support). ECMO survival was 0% in the first 5-yearly block and 71% in the last. Since 2007, defect size has been graded at surgery (A,B,C,D) in 131 patients and used to analyse survival by disease severity: Stage 1 (100%) Stage 2 (100%), Stage 3 (81%), Stage 4 (55%) and Stage 5 (50%).

Conclusion: The study has the limitations of a single institution experience but demonstrates the evolution of CDH management in the ECMO era. ECMO has provided a safety net to allow evaluation of newer therapies. Reported outcomes for surgical centres will vary depending on referral patterns and ECMO capabilities, so presenting results using an agreed staging system helps with interpretation and comparison of results.

	1992-1996	1997-2001	2002-2006	2007-2011	2012-2016
Numbers	35	47	61	56	48
Antenatal Diagnosis	21%	49%	54%	68%	76%
iNO	11%	47%	47%	54%	77%
Proportion undergoing surgical repair	86%	85%	93%	89%	89%
Patch Use	37%	38%	47%	50%	60%
Survival	71%	77%	80%	73%	75%
ECMO Use	14%	17%	23%	21%	35%
ECMO Survival	0%	63%	57%	42%	71%

Table 1 Diagnosis, management trends and outcome for CDH over 25 years in a single ECMO centre