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The Correlation between Defect-Size and Outcome in Congenital Diaphragmatic Hernia

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Background/Purpose: The purpose of this study was to classify the defect size in distinct groups and to analyse the impact of these different groups on the use of ECMO, survival rate, ventilation time and chronic lung disease.

This classification is used in the CDH study group data entry form and will be here for the first time detailed analyzed.

Materials and Methods: Between 2002 and 2007, 266 newborns with CDH were treated at the children's Hospital in Mannheim, University of Heidelberg.

The records were collected using the CDH study group data entry form.

The outcome variables were mortality until hospital discharge, the grade of chronic lung disease, the ventilator –free days, and the survival time.

Results: The larger defect size correlates significantly with low 5 minute Apgar score and distinctive initial pulmonary hypertension.

ECMO was used in 44% of patients depending on oxygenation index (OI) or poor systemic perfusion. The use of ECMO was highly associated with large defect size. Bronchopulmonary dysplasia were recorded in 104 (43.5%) surgically repaired patients. By discharge 56 % of the survived patients had BPD.

The severity of BPD could be registered in 89 (37%) patients, 36% of them had mild BPD, 31% had moderate BPD, and 33% had severe BPD. The Diaphragm defect size was a relevant predictor of BPD and its severity as well as of mortality.

There were to some extent an overlapping between the different four groups, for example between group C and D, A and B, as well as B and C, but each of the groups was significantly different from the other in one or more parameter, so that we consider this classification to be appropriate.

Conclusion: 85 % of the CDH patients could be surgically repaired, in whom approximately 90% survived to hospital discharge, the classification of defect size aids to accurately differentiate the severe affected patients and to predict the mortality and morbidity in each group.