

Chylothorax – do standard management techniques affect prolonged pleural drainage in post-operative cardiac surgery patients?

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Introduction (or Basis or Objectives):

Chylothorax is an uncommon complication of paediatric heart surgery (approx. 1-2%). The diagnostic criteria for this condition are the presence of chylomicrons, triglyceride concentration, total cell count, and lymphocyte percentage. The aims of this project were to investigate the correlation between such investigation results and duration of drainage and length of hospital stay, and to determine the impact of interventions on these outcomes.

Methods:

Data was reviewed from a three-year period (2007-10) from patients aged < 16 who had been tested for suspected chyle in pleural effusion post-cardiac surgery, and had survived until discharge. Key outcomes were duration of drainage (DOD) and length of hospital stay (LOS). 76 patients were allocated to groups (positive, borderline and negative) based on the results of protocol based investigations.

Results:

	Positive	Borderline		Negative	p—value
		Group A ‡	Group B ‡		
No. of patients	33	5	20	18	
Age (median (range))	8 months (10 days – 10 years)	1 year (7 days – 8 years)	1 year (25 days – 7 years)	3.5 years (1 year – 10 years)	
DOD (median)	10	12	9.5	14	0.638
LOS (median)	20	46	17	19.5	0.530
Positive and borderline patients only					
	Treated		Untreated		
DOD (median)	12		7		0.006
LOS (median)	23		15		0.031

‡ The borderline group – in which patients were negative for chylomicrons – was subdivided into Group A (patients who were positive for the combination of triglyceride concentration, total cell count, and lymphocyte percentage) and Group B (patients who were positive for only one or two of these).

There were no significant differences between groups in terms of DOD or LOS. Low fat diet and medium chain triglyceride substitution did not show a significant impact on these outcomes. TPN and octreotide were associated with poorer outcomes ($p=0.02$).

Conclusions:

Differentiating chylous from non-chylous effusions with corresponding management strategies has little impact on either duration of drainage or length of stay. TPN and octreotide appear to be associated with longer DOD and LOS; however, it seems more likely that TPN and octreotide are utilised late in the process. Given that interventions themselves may lead to adverse effects and complications, and in some cases are based on anecdotal evidence, we feel a randomised trial of active vs. expectant management is indicated. On the basis of these findings in our department, we have adopted a laissez-faire approach to chylothorax by delaying interventions for one week post-diagnosis (as we found that the median duration of drainage in untreated positive patients was 7 days). This approach has already proved successful in 2 cases.