Does chest tube size matter in managing parapneumonic effusions?

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Aims

This study aims to compare the 'drainage time': the time required to drain the effusion, with a small-bore (12F) chest tube or a conventional large-bore (20–24F) chest tube in patients with a parapneumonic effusion.

Methods

Data from 54 patients with parapneumonic effusions who had chest tubes inserted were collected retrospectively and analysed in a tertiary UK hospital.

Results

The drainage time was significantly less ($p<0.01$) with a large-bore chest tube (3.87 days) compared with a small-bore chest tube (5.3 days). Analysis also showed that the large-bore group had more complex parapneumonic effusions than the small-bore group, with higher lactate dehydrogenase (LDH) levels (9,043 versus 1,968 IU/L respectively) and lower glucose levels (3.37 versus 5.13 mmol/L respectively) (Table 1). There was no significant difference in mortality ($p=0.54$) or surgical referral rate ($p=0.68$) between the two groups.

Conclusions

Drainage time with a large-bore chest tube was significantly less than with a small-bore chest tube, despite the large-bore group having patients with more complex parapneumonic effusions. We recommend the use of a large-bore chest tube as the initial choice of chest tube size for the management of a patient with parapneumonic effusion. ■

Table 1. Summary of the patient characteristics and outcomes between the groups with two different-sized chest tubes

Patient characteristic	Total	Small-bore tube	Large-bore tube
Number (%)	54	36 (66.7)	18 (33.3)
Median age (years)	67.0	69.0	63.5
Gender:			
Men (%)	48 (88.9)	35 (97.2)	13 (72.2)
Women (%)	6 (11.1)	1 (2.8)	5 (27.8)
Location:			
Inpatient (%)	48	32 (88.9)	16 (88.9)
Outpatient (%)	6	4 (11.1)	2 (11.1)
Biochemistry profile:			
Average fluid LDH (IU/L)	N/A	1,963	9,048
Average fluid glucose (mmol/L)	N/A	5.13	3.37
Outcome:			
Did not require further intervention (%)	44	29 (80.6)	15 (83.3)
Drainage time (mean±SD, days)	N/A	5.3±0.22	3.8±0.40
Surgical referral (%)	7	4 (11.1)	3 (16.7)
Died (%)	3	3 (8.3)	0 (0)

LDH = lactate dehydrogenase; N/A = not applicable; SD = standard deviation

Conflict of interest statement

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