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Benchmarking Intensive Care Physiotherapy Staffing in Australian Tertiary Hospitals

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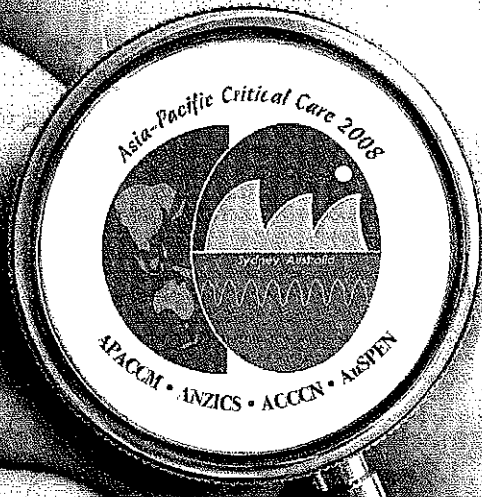
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Poster Abstracts: Medical

Poster Board #101

BENCHMARKING INTENSIVE CARE PHYSIOTHERAPY STAFFING IN AUSTRALIAN TERTIARY HOSPITALS

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Introduction: Physiotherapy is an important component in the management of patients in the Intensive Care Unit (ICU). Existing guidelines on ICU physiotherapy staffing represent European settings and are not contemporary. With no specific recommendations in Australia, medical and nursing staffing guidelines reflected the need to have designated physiotherapy services available and accessible 24 hours a day in ICU. Therefore this study aimed to pinpoint a guideline for ICU physiotherapy staff allocation by examining the current physiotherapy staff levels in ICU of Australian tertiary hospitals and comparing it with staff levels desired by senior physiotherapy leaders.

Methods: A questionnaire sourced data from 40 Australian ICU physiotherapy clinical leaders on hospital bed numbers, physiotherapy staffing (Full Time Equivalent (FTE)) and levels, and average daily occasions of service in ICU. Staff level results were summarised in "Beds / FTE".

Results: The survey response rate was 45% with responses from all jurisdictions within Australia except Australian Capital Territory. Results are summarised in the table below.

Mean (SD)	Hospital ≤ 500 beds		Hospital > 500 beds	
	Weekdays	Weekends	Weekdays	Weekends
Current Beds/FTE	10.4 (4.7)	19.2 (5.8)	11.9 (7.3)	13.0 (9.9)
Ideal Beds/FTE	5.3 (1.2)	-	7.7 (4.1)	-
Daily OS/FTE	12.9 (4.5)	15.6 (6.2)	14.7 (5.1)	9.9 (6.2)

SD = Standard Deviation; OS = Occasions of Service

The overall difference between current and ideal beds/FTE ratios was statistically significant (P=0.004). The average staffing level on weekends was lower than on weekdays in both hospital groups. Hospitals with > 500 beds tended to utilise more senior staff.

Conclusion: Respondents indicated a desire for higher physiotherapy staff levels. The physiotherapy workforce in larger tertiary hospitals varies from that of smaller tertiary hospitals. The range of current and ideal bed/FTE ratios identified in this study could be used to guide future physiotherapy staff allocation in ICU and to understand staff moral and other human resource issues.

Poster Board #102

COMPARATIVE ANALYSIS ON THE TIMING OF TRACHEOSTOMY DURING MECHANICAL VENTILATION

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Despite widespread use of tracheostomy in ICU, it is still a controversial issue to define the best timing of change from endotracheal intubation to tracheostomy under the prolonged mechanical ventilation. This study was designed to compare clinical parameters between early tracheostomy (ET) and late tracheostomy (LT).

A retrospective study was done in 35 medical and 15 surgical ICU patients with observations during 28 days from tracheostomy in terms of ET group (n=25) vs LT group (n=25). The reference day between ET and LT was defined to 7th day from intubation.

The mean age was 48±18 years in ET and 63±17 years in LT. APACHE III scores in each time of intubation and tracheostomy were slightly higher in LT but not significant statistically. Day to day APACHE III scores were not different between two groups during an observation period until 7th day from tracheostomy. Occurrence of nosocomial infections, weaning from mechanical ventilation, and mortality showed no significant difference between two groups with observation period of 28 days from tracheostomy. The mortality was increased as the APACHE III score up to 7 days from tracheostomy was increased. However there were no increment on mortality in terms of time of tracheostomy and days of ventilator use before tracheostomy.

There was no clinical benefit of ET vs LT in terms of changes of severity index, nosocomial infection, duration of ventilatory support, and mortality. It suggests that the proper time of tracheostomy is better to be decided on the clinical judgement.

Poster Board #103

ASSESSMENT OF PLASMA AND TISSUE LACTATE BY MEANS OF SUBCUTANEOUS MICRODIALYSIS DURING SEPTIC SHOCK: CASES WITH BACTEREMIA (BA) VS. NONBACTEREMIA (NON-BA).

Introduction: Plasma lactate has been used as a better marker of tissue hypoperfusion in patients with sepsis. However, we hypothesized that there can be difference between plasma and tissue lactate in septic. Thus we investigated plasma and tissue lactate in septic patients for an assessment of difference and correlation in both groups.

Methods: Cases with septic shock were enrolled between April 2006 and March 2008 in a mixed ICU at a tertiary care hospital in Japan. Microdialysis (CMA/Microdialysis) was used for measuring tissue lactate. Plasma and tissue lactate of cases with BA and Non-BA were measured 3 times with 8-hour interval after ICU admission. Then two groups were compared and evaluated whether plasma lactate was correlated with tissue lactate. All data were reported as medians and interquartile ranges (IQ). Mann-Whitney U-test and Spearman's correlation were used for statistical analysis and P<0.05 was considered statistically significant.

Results: Fourteen cases were evaluated. No difference of APACHE-2 score was observed in BA and Non-BA. Tissue lactate level (mmol/L) in BA (median 3.8, IQ 1.9-5.4) was significantly higher than in Non-BA (median 1.9, IQ 1.6-2.6) (p=0.012). Tissue lactate was correlated with plasma lactate in both BA (P=0.005) and Non-BA (P=0.012).

Conclusions: Our data suggested that tissue ischemia was more prominent in septic patients with BA than those with Non-BA. Tissue lactate measured by Microdialysis and plasma lactate were correlated in both BA and Non-BA groups.

Poster Board #104

ASSESSMENT OF PLASMA AND TISSUE LACTATE BY MEANS OF SUBCUTANEOUS MICRODIALYSIS DURING SEPTIC SHOCK: CASES WITH BACTEREMIA (BA) VS. NONBACTEREMIA (NON-BA).

K Morisawa, S Fujitani, H Takahashi, M Yanai, Y Taira

St Marianna University, Kawasaki-City, Japan

Introduction: Plasma lactate has been used as a better marker of tissue hypoperfusion in patients with sepsis. However, we hypothesized that there can be difference between plasma and tissue lactate in septic.

Study Objectives: We investigated plasma and tissue lactate in septic patients for an assessment of difference and correlation in both BA and Non-BA groups.

Methods: Cases with septic shock were enrolled between April 2006 and March 2008 in a mixed ICU at a tertiary care hospital in Japan. Microdialysis (CMA/Microdialysis) was used for measuring tissue lactate. Plasma and tissue lactate of cases with BA and Non-BA were measured 3 times with 8-hour interval after ICU admission. Then two groups were compared and evaluated whether plasma lactate was correlated with tissue lactate. All data were reported as medians and interquartile ranges (IQ). Mann-Whitney U-test and Spearman's correlation were used for statistical analysis and P<0.05 was considered statistically significant.

Results: Fourteen cases were evaluated. male/female ratio of BA was 2/5 (age 62-86) and Non-BA was 4/3 (age 57-88). No difference of APACHE-2 score was observed (mean: BA 30 vs Non-BA 29). Tissue lactate level (mmol/L) in BA (median 3.8, IQ 1.9-5.4) was significantly higher than in Non-BA (median 1.9, IQ 1.6-2.6) (p=0.012). Tissue lactate was correlated with plasma lactate in both BA (P=0.005) and Non-BA (P=0.012).

Conclusions: Our data suggested that tissue ischemia was more prominent in septic patients with BA than those with Non-BA. Tissue lactate measured by Microdialysis and plasma lactate were correlated in both BA and Non-BA groups.