S65 RAISED CK LEVELS IN SEVERE ASTHMATICS ADMITTED TO THE CRITICAL CARE UNIT- A RETROSPECTIVE COHORT ANALYSIS

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Introduction and Aims Acute severe asthma is a life threatening condition. Mechanical ventilation may be indicated in about third of asthmatics admitted to the intensive care unit and has a mortality rate of 8%.[1] Several reports have identified elevated CK levels during an episode of acute severe asthma. Intense muscular workload during an acute episode and drugs such as steroids, anaesthetic induction agents, aminophylline and salbutamol are all implicated in raising plasma CK levels. Our aim was to retrospectively evaluate the CK levels and clinical implications in patients with acute severe asthma, who were admitted to our intensive care unit.

Methods This was a retrospective survey of all asthmatics admitted to intensive care unit between October 2009 and July 2011. Patient's case notes were screened to identify demographics and clinical details.

Results Thirty asthmatics with 37 admissions were identified. Three patients had multiple admissions. Mean age was 37 and two third were female. Twelve patients had CK levels performed as part of clinical management. Seven patients (58%) had CK levels ≤320 IU/ml and 5 patients (42%) had CK levels ≥320 IU/ml. Patients with raised CK levels had more intubations, ICU days and hospital days. IV aminophyline and IV salbutamol infusions were more frequent in patients with raised CK levels. The elevated CK was noted on average 1.8 days after the admission (Table 1). Three patients with raised CK levels had severe renal failure with evidence of myoglobinuria. Statistical analysis is not performed due to small number of patients.

Discussions Acute severe asthmatics may develop raised CK levels with evidence of myoglobinuria and subsequent renal failure. The exact mechanisms are not fully explored. Intravenous $beta_2$-agonists with combination of IV aminophylline may be a contributory factor. Prospective studies are needed to evaluate the path ophysiological mechanisms and clinical implications.

References

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Epithelial-fibroblast interactions in pulmonary fibrosis

S66 TARGETED IN VIVO IMAGING OF THE αVβ6 INTEGRIN IN MICE WITH BLEOMYCIN-INDUCED LUNG FIBROSIS

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Introduction TGFβ activation by αvβ6 integrins is central to the pathogenesis of idiopathic pulmonary fibrosis (IPF). Furthermore, αvβ6 expression is increased in both human, and murine, fibrotic lung tissue. Current assessment of αvβ6 integrin levels in the lung requires immunohistochemical analysis of biopsy samples and repeated measurement of αvβ6. Although αvβ6 may be useful as a biomarker in IPF, currrent methods of detection make this approach clinically impractical. We have developed a non-invasive radioimaging CT/SPECT strategy for measuring αvβ6 integrin levels in the lungs facilitating the monitoring of disease progression and therapeutic response in IPF.

Methods C57Bl/6 mice received intratracheal bleomycin or saline, 28 days prior to intravenous injection with Indium^{111}-labelled A20FMDV2, an αvβ6 binding peptide derived from the VP1 coat protein of foot-and-mouth virus. A scrambled sequence peptide was used as control. Mice were injected with 5μg (10–24MBQ) of peptide and imaged by CT/SPECT scanning one, and three, hours later.

Results Maximal binding of Indium^{111}-labelled A20FMDV2 peptide was detected in skin, and lungs, of all mice at one hour. No significant binding was detected in mice injected with control peptide. Binding to αvβ6 integrin was significantly higher in the lungs of bleomycin, compared with saline, exposed mice (0.12±0.01MBQ vs 0.06±0.009 $p<0.001$). Label was detected at similar levels in the bladder and kidneys of all mice suggesting similar administration and excretion kinetics.

Conclusions Indium^{111}-labelled A20FMDV2 peptide can specifically detect increased levels of αvβ6 integrin in the lungs of injured mice demonstrating that non-invasive imaging of the αvβ6 integrin in the development of fibrosis is possible.

Abstract S65 Table 1

	Normal CK	Raised CK
Number of patients	7	5
M:F	2:5	1:4
Age*	39 (+/-14)	40 (+/-4)
Age (Range)	22-57	34-46
Number of patients had Mechanical ventilation (%)	3 (43%)	5 (100%)
Ventilator days*	1.3 (+/-0.5)	10 (+/- 7)
ICU days*	2 (+/-1)	13 (+/-8)
Hospital Days*	8 (+/-5)	19 (+/-11)
CK (IU/l)*	151 (+/-78)	10362 (+/- 6430)
Creatinine (umol/l)*	80 (+/-20)	188 (+/-135)
Number of patients had Steroids (%)	7 (100%)	5 (100%)
Number of patients had IV aminophylline (%)	5 (71%)	5 (100%)
Number of patients had IV Salbutamol (%)*	1 (14%)	5 (100%)
CK measured (days after admission)*	1.3 (+/- 0.7) days	1.8 (+/- 0.8) days

Table 1: Demographics and clinical details of patients who have had plasma CK levels measured.*Data are expressed in mean and standard deviations (STD).