



University  
of Glasgow

Mackay, A., Docking, R., Kinsella, J., and Booth, M.G. (2010) *Statin therapy on admission to intensive care and outcome: an observational cohort study*. *Critical Care*, 14 (Sup. 1). p. 431. ISSN 1364-8535

<http://eprints.gla.ac.uk/60159>

Deposited on: 24 February 2012

# Statin Therapy on Admission to Intensive Care and Outcome An Observational Cohort Study

A Mackay, R Docking, J Kinsella, M G Booth

*Intensive Care Unit & Glasgow University Section of Anaesthesia, Pain & Critical Care, Glasgow Royal Infirmary, 10 Alexandra Parade, Glasgow G31 2ER*

## Introduction:

Statins are powerful hypolipaeamic drugs which are proven to improve survival in patients with atherosclerosis. Their effects are not limited to lowering cholesterol but also include antiinflammatory and antioxidative properties. For these reasons, it has been postulated that statins may reduce mortality in critically ill patients. We aimed to investigate the association between statin therapy on admission and outcome from intensive care in our ICU.

## Methods:

A prospective case note review of 504 consecutive admissions to Glasgow Royal Infirmary Intensive Care Unit (ICU) was undertaken over an 18 month period. Details of statin prescription, cardiovascular comorbidity and smoking status was sought from the patients' case notes by hand using details of current and previous admissions, clinical letters, results of investigations and correspondence from the patient's general practitioner, using agreed criteria. Demographic, Acute Physiology and Chronic Health Evaluation II (APACHE-II) score and outcome data were retrieved from the Ward Watcher system in the ICU.

## Results:

Complete data were available for 444 patients. 111 (25%) of these were on statin therapy on admission to intensive care. See Table below for all results. All data are expressed as Mean  $\pm$  95% Confidence Interval or Median (Interquartile Range). Differences between groups were tested using Chi-squared test, Mann-Whitney test and unpaired Students t-test.

	Statin n=111	No Statin n=333	p
Male (%)	76.6	63.0	0.009
Age (years)	65.2 $\pm$ 1.93	49.7 $\pm$ 1.86	<0.001
APACHE II	20 (15-25)	16 (11-23)	<0.001
ICU Mortality (%)	27.9	27	0.86
Hospital Mortality (%)	40.5	31.2	0.07
Predicted Mortality (%)	37.2 $\pm$ 3.97	28.7 $\pm$ 2.68	0.001
Length of ICU Stay (days)	6.0 $\pm$ 1.7	5.8 $\pm$ 1.1	0.88
Ischaemic Heart Disease (%)	69.4	17.1	<0.001
Hypertension (%)	47.5	0.22	<0.001
Cigarette Smoking (%)	41.4	47.4	0.27

## Conclusions

Statin therapy does not significantly alter ICU or hospital mortality in our population. Patients on statin therapy are more likely to be older, male and also have hypertension and ischaemic heart disease. There are significant differences in APACHE II scores between the groups and predicted mortality which may suggest that patients on statins fare better than predicted, based upon their comorbidities.

## References

1. A Mekonso-Dessap, C Brun-Buisson. Statins: the next step in adjuvant therapy for sepsis?. *Int Care Med* 2006;32(1):11-14