BEST ABSTRACTS

Poster Corner 2 - ICU organisation and outcomes

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LONG-TERM OUTCOME AND QUALITY OF LIFE YEARS AFTER INTENSIVE CARE UNIT (ICU) DISCHARGE

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INTRODUCTION. The ICU or in-hospital mortality rate is a usual outcome measure for measuring the quality of care in an ICU. A survivor having a good quality of life after being discharged is a more relevant and important parameter as patient going back to the community with dependence on others for daily activities adds to the burden of the society in general.

OBJECTIVES. Evaluate the quality of life of patient discharged from the ICU and to perform cost-effectiveness and cost-utility analysis on the basis of individual patient costs.

METHODS. A retrospective analysis of ICU stay and a prospective observational cohort study of the quality of life of the patients were done. Patients admitted from 1st January 2005 till 31st December 2010 were followed up. Quality of life was assessed by SF36 through personal interview, telephonic interview or email correspondence. The quality was compared with a general reference population. We had a priori dichotomised patients into age more than 50, length of stay in ICU more than 28 days and need for mechanical ventilation more than 7 days.

RESULTS. 1535 patients were admitted during the period out of which 1232 were adult patients. 758 patients were discharged from the ICU. Sepsis was the most common cause of admission in the ICU (32.6%). In the age group more than 50 years neurological cause for admission was in higher proportion to younger patients. 113 of these patients could be contacted. 27 of the patients had died 2 years after discharge from ICU. The quality of life of the surviving patients was similar to the general population (make spider diagram). Patients with age more than 50 had worse scoring for physical role functioning and mortality, ICU stay more than 28 days had more bodily pain and patients who needed mechanical ventilation more than 7 days had less vitality. The QALY for age more than 50 was 5.5 ± 2.7 and for age less than 50 was 5.71 ± 1.82. The cost of therapy per QALY gained was comparable in both age groups. Years of life gained were significantly higher in the age group less than 50 years. Cost of therapy per year of life gained was significantly lower in age group less than 50 yrs.

CONCLUSION. The quality of life in patient discharged from ICU was similar to general population measured at 5 years. The QALY was similar among young and old patients. The cost of therapy was significantly lower per year of life gained due to ICU stay.
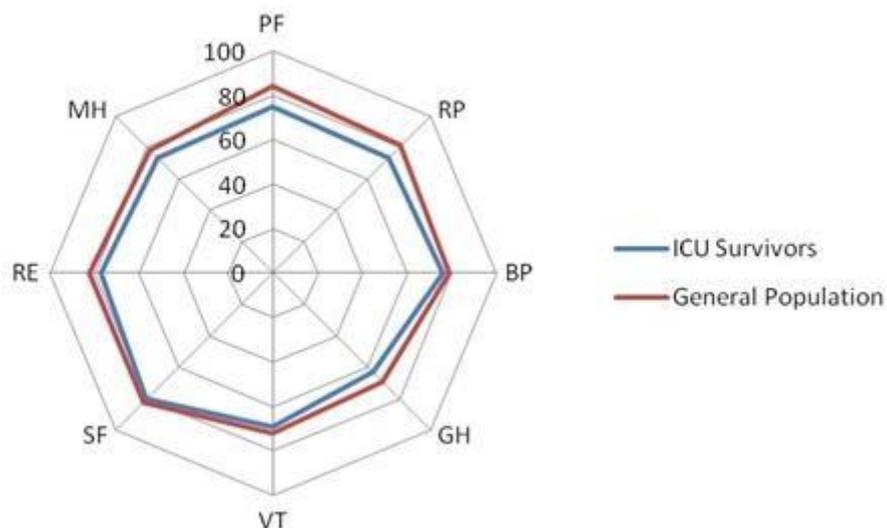
[Spider Diagram of SF 36 score in comparison to general population]

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TRANEXAMIC ACID IN CARDIAC SURGICAL PATIENTS WITH RENAL DYSFUNCTION. ARE WE SAFE? WHAT IS THE RIGHT DOSE?

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INTRODUCTION. Up to 50% patients presenting for cardiac surgery have chronic renal dysfunction (**CRD**).Tranexamic acid (**TA**) is a common anti-fibrinolytic agent used to reduce blood loss during cardiac surgery (Class I indication). TA is primarily renally eliminated and likely to accumulate in CRD patients. Additionally, high doses of TA and CRD have been linked with postoperative seizures. Optimal TA dosing for CRD patients is unknown and current TA dosing regimes are likely to give high and potentially toxic plasma levels that may promote seizures.

OBJECTIVES. He purpose of this study was to measure plasma TA concentration levels to aid pharmacokinetic modelling and guide optimal TA dosing for patients with CRD undergoing cardiac surgery.

METHODS. Prospective cohort study enrolling 49 patients with stages 1-5 CRD defined by the Kidney Disease Outcome Quality Initiative.REB, Health Canada approval and patient consent were obrained. Patients were divided into 2 dosing regimes. 'Low bleeding risk group' undergoing aorto-coronary bypass or single valve repair/replacement received 50 mg/kg bolus. 'High bleeding risk group' undergoing, aortic, redo, multiple valve or combination procedures received the BART dosing regime (loading dose 30 mg/kg, infusion 16/mg/kg with 2 mg/kg in pump prime). Serial plasma TA levels were measured peri-CPB using solid phase microextraction to conduct pharmacokinetic modelling. Pharmacokinetic modelling was conducted using our previous 2 compartment model (1).

RESULTS. 27 patients were in the low bleeding risk group and 22 were in the high bleeding risk group. Plasma levels of TA were elevated in proportion to the severity of CRD reaching 3-4 fold concentration desired for 100% inhibition of fibrinolysis (100 mg/L). 8% (4 patients) suffered a postoperative seizure in the high risk group. There was a non-statistically significant trend towards higher TA doses and lower renal clearance in the seizure group.Postoperative mortality rate was 10% (5 patients) predominantly in the high risk patient group. TA maintenance dose reduction was recommended for varying levels of reduced renal function based on glomerular filtration (Table 1).

Percentage of Glomerular Filtration Rate	Tranexamic Acid Plasma Clearance (ml/min)	Maintanance Infusion Rate (mg/kg/h)
100%	0.11	16
75%	0.086	12
50%	0.058	6
25%	0.028	5
10%	0.011	1.6
5%	0.0056	0.8
1%	0.0028	0.16

[Recommendations for tranexamic acid maintaince inf]

CONCLUSIONS. Current TA dosing regimes leads to high and dangerous plasma TA levels among CRD patients.This may render patients susceptible to seizure activity (2).The proposed TA dosing reduction strategy provides a safer regime that can be simply adopted for CRD patients.

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Poster Corner 6 - Severe infections

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A POPULATION-BASED COHORT STUDY ON THE DRUG-SPECIFIC EFFECT OF STATINS ON SEPSIS OUTCOME

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BACKGROUND. Recent experimental studies have shown that certain types of statins, especially simvastatin, might have a direct antimicrobial activity. Whether statin treatment exerts a drug or a class-specific effect in patients with sepsis remains unknown.

METHOD. Short-term mortality in hospitalized sepsis patients was analyzed using data collected from the National Health Insurance Research Database. We compared chronic statin users prescribed with atorvastatin, simvastatin and rosuvastatin before hospital admission. Use of statins was defined as the cumulative use of statins for more than 30 days prior to index sepsis admission. We determined the association between statin and sepsis outcome by multivariate-adjusted Cox models and the propensity score (PS) matched analysis using a 1:1:1 PS matching technique.

RESULTS. A total of 52,737 sepsis patients fulfilled the inclusion criteria, of which 1855 (53.0%) filled a prescription for atorvastatin, 916 (26.1%) for simvastatin, and 732 (20.9%) for rosuvastatin. Compared with nonusers, previous treatment with simvastatin (PS-matched hazard ratio [HR] 0.72, 95% CI 0.58-0.90) or atorvastatin (HR 0.78, 95% CI 0.68-0.90), were associated with an improved 30-day survival, while previous treatment with rosuvastatin was not (HR 0.87, 95%CI: 0.73-1.04). Using rosuvastatin as the reference, atorvastatin (HR 0.79, 95% CI 0.64-0.99) and simvastatin (HR 0.77, 95% CI 0.59-0.99) had superior effectiveness to prevent mortality in this population with sepsis.

CONCLUSIONS. Compatible with in vitro experimental findings, we demonstrated that the statins' effect on sepsis is drug specific; in fact, atorvastatin and simvastatin are associated with better outcome than rosuvastatin in sepsis patients.

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