Scottish Executive Health Department Chief Scientist Office

FOCUS ON RESEARCH

Long-term outcomes and health care utilisation of patients surviving acute liver failure (the surviving ALF study)

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Aim
Acute liver failure (ALF) is a rare but devastating clinical condition. Initial hospital admission is associated with poor outcomes; up to 40% of patients need emergency liver transplant (LTx) or die. If patients can be supported through their initial illness the current expectation is of complete liver recovery. However, it remains uncertain if there are no long-term adverse health outcomes. The aim of this study was to review the long-term mortality and health care use of patients surviving admission to the Scottish Liver Transplant Unit (SLTU) with ALF.

Project Outline/Methodology
Patients spontaneously surviving admission to SLTU without emergency liver transplant (SLTU SS, n=708, Nov 1992-Dec 2014) were linked to pre-admission and post-admission hospital, mental health and cancer databases. The SLTU SS were matched with up to 5 healthy persons by year of birth, sex and postcode sector. SLTU SS of paracetamol (POD) aetiology (most common cause of ALF in Scotland) were compared with paracetamol overdose survivors admitted to Scottish hospitals but not transferred to SLTU. SLTU SS admitted to intensive care (ITU) were compared with non-surgical emergency cases admitted to Scottish ITUs. SLTU ALF survivors with emergency LTx were another comparator cohort. Follow up was censored at 30th June 2015.

Key Results
Mortality was increased in the SLTU SS compared with population controls (adjusted hazard ratio, AHR, 3.56) and in SLTU POD SS compared with POD survivors not transferred to SLTU (AHR, 1.62). In contrast, SLTU ITU SS had similar mortality to Scottish ITU survivors and SLTU survivors after emergency LTx. Age, emergency health-care use and admission bilirubin were factors associated with long-term mortality in the SLTU SS. After discharge, SLTU SS were more likely to be admitted to hospital compared with the population controls (AHR, 1.54), especially as unplanned emergency admission (AHR, 2.14), other cohort comparisons were not significantly different. Annual admission rates (AAR) were increased in the SLTU SS compared with population controls (adjusted AAR 2.99), especially emergency admission (adjusted AAR 4.65). Age, medical and psychiatric pre-admission health-care use, non-POD aetiology and admission bilirubin were factors associated with post-index readmission in the SLTU SS. Readmission was particularly increased in SLTU emergency LTx compared with the SLTU SS cohort.

Conclusions
In contrast with previous assumptions, death and health-care use are significantly increased in patients surviving admission with ALF compared with population controls.

What does this study add to the field?
Previous long-held expectations were that patients surviving this rare condition returned to normal health. Our study has shown that this is clearly not the case; this surviving cohort has reduced survival and increased health-care use. Age, pre-admission medical and psychiatric health-care and aetiology of ALF identify a high-risk population (for death and readmission) of SLTU SS.

Implications for Practice or Policy
We need to recognise the adverse outcome in the survivors of ALF (especially in those with high-risk features), acknowledge the adverse outcomes in discussions with patents and carers, and develop alternative follow-up and support strategies to reduce death-rate and readmission in this population.

Where to next?
To study in more detail the causes of death and readmission in the SLTU SS to develop better strategies to help the adverse long-term outcomes. Identify issues regards referral bias and explore further the causes and implication of increased readmission in the SLTU Tx cohort.

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