New prediction model to improve patient survival after paracetamol-related liver failure

April 10 2014

In the UK paracetamol toxicity is the most common cause of ALF and has a high mortality rate. It is estimated that 150 to 200 deaths and 15 to 20 LTs occur as a result of poisoning each year in England and Wales. LT is the definitive treatment for ALF patients who meet the criteria for transplantation but the current means of selection for LT (the King's College Criteria) are not ideal and do not assess changes in prognostic measures over time or quantify the mortality risk for individual patients.

Experts in London from King's College Hospital and the Foundation for Liver Research studied a large group of patients (500) with paracetamol-related ALF and developed and validated a novel outcome prediction model using sequentially-assessed measures to generate an individualised mortality risk prediction without LT.

320 patients (admitted 2000-2007) formed a training dataset and 180 (2008-2012) were studied for testing over a three-day period after admission to a specialist intensive care unit.

Age, encephalopathy and cardiovascular failure severity on admission, as well as the dynamic variables of arterial pH, lactate and creatinine over the first three days were found to be the best predictors. Prediction of non-transplanted 15-day survival in the training and test groups was 0.95 (95% CI 0.93-0.98) and 0.91 (0.82-1) respectively: significantly higher than the standard Kings College Criteria (0.78 (0.72-0.83), with

quantified survival predictions being provided for individual patients.1

Prof. Markus Peck-Radosavljevic, Secretary-General of the European Association for the Study of the Liver and Associate Professor of Medicine, University of Vienna, Austria commented: "Acute liver failure is a devastating condition that triggers a cascade of events that can lead to multiple organ failure and often death."

"This high-performance survival model for paracetamol-induced [acute liver failure](#) will enable each individual patient to be assessed quickly and a personalised mortality risk provided. Consequently, this will allow the healthcare professional to make a very informed decision regarding a liver transplant, potentially resulting in improved patient outcomes," he added.

Paracetamol is classified as a mild analgesic and is commonly used for the relief of headaches and other minor aches and pains as well as being a major ingredient in numerous cold and flu remedies. It is widely prescribed and inexpensive to purchase over-the-counter (OTC), making it a common drug taken in overdose. It is particularly toxic when taken in combination with alcohol.

In 1998, the UK government restricted sales of OTC paracetamol to packs of 32 500mg tablets in pharmacies and 16 500mg tablets in non-pharmacy outlets. Pharmacists may provide up to 100 tablets for those with chronic conditions at the pharmacist's discretion

Provided by European Association for the Study of the Liver