

SUPPLEMENTARY METHODS

Definitions

Body mass index (BMI) was calculated based on admission weight and height. BMI categories were defined as 1) Normal: BMI < 25 Kg/m²; 2) Overweight: BMI 25 to < 30 Kg/m² and 3) Obese: BMI ≥ 30 Kg/m².

Organ failure (OF) was defined according to the RAC. Transient organ failure (TOF) was defined as OF lasting for < 48 hours and persistent organ failure (POF) was defined as OF lasting for ≥ 48 hours. Patients who developed TOF and died with 48 hours of onset of OF were classified as POF for the purpose of the statistical analysis as it was felt that they had a fulminant form of OF, most similar patients with POF as compared to patients with TOF that subsequently resolved.

Inpatient mortality was defined as death occurring during the hospitalization for a patient admitted with their first or subsequent episode of AP.

LOS was defined as the length of time in days from presentation to the emergency department to the day of discharge or death. A prolonged LOS was defined as a LOS in the upper quartile for the cohort.

SUPPLEMENTARY STATISTICAL ANALYSIS

In development of the multivariable regression models, the continuous variables, Age and CCI were examined with lowess plots to help determine the best fit for these variables. These variables were evaluated as both continuous variables with and without linear and/or cubic spline terms and as multiple different categorical variables in order to determine the best fit for each continuous variable in the Cox models. If there was no difference in the fit of a variable using categorical terms as compared to spline terms, the categorical representation of the variable was chosen as it was felt that this would be easier for the reader to interpret. Cox proportional assumptions were checked using Schoenfeld residuals. Multivariable regression models were adjusted for the established factors associated with mortality and POF. Somers' D statistic and the Akaike's information criterion was used to compare different Cox models for best fit. Multivariable models were adjusted for the known predictors of mortality and organ failure. There was < 5% missing data at the end of the study. Missing data was reconciled retrospectively with the specific center(s). After all missing data was collected, BMI was the only variable that had persistent missing data with 41 (2.5%) patients in the cohort not having an admission BMI available.