Abstract: P252

Identifying predictors for all-cause mortality at admission, 1 and 3 years after admission for acute decompensated heart failure amongst patients with atrial fibrillation.

Authors:
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Topic(s):
Heart Failure in Atrial Fibrillation

Citation:
Background: Heart failure (HF) and atrial fibrillation (AF) commonly co-exist, each, predisposing the other. AF may inflict haemodynamic disturbances, leading to reduced cardiac output and hence acute decompensation. Ultimately mortality risk is further increased. Identifying contributing factors is thus vital lest increasing risk of poor outcome.

Purpose: Identify predictors of all-cause mortality in AF patients after admission for acute decompensation HF (ADHF) at admission, 1 and 3 years.

Methods: A retrospective observational study of 810 AF patients' first admission from 2009 to 2018, analysed using descriptive, ROC curve and Cox regression.

Results: Mortality at admission, 1 and 3 years following ADHF were 5.1%, 14.4% and 40.5% respectively. Majority of AF patients were male (64.7%) but there was no significant statistical difference between gender with associated mortality during those timelines. Using multivariate analysis, predictors associated with increased in-hospital mortality were Hyponatraemia, Na < 135mmol/L (adjusted Odds Ratio, aOR 2.49; 95% Confidence Interval, CI 1.91-5.20; p=0.015), Uric Acid = 675 (aOR 2.75; CI 1.31-5.79; p=0.008), Ejection Fraction, EF < 40% (aOR 3.93; CI 1.63-9.49; p=0.002). Medications on admission associated with reduced inpatient mortality were Angiotensin Converting Enzyme inhibitor (ACEi) / Angiotensin Receptor Blocker (ARB) + Beta Blocker (BB) + Mineralocorticoid Receptor Antagonist (MRA) (aOR 0.07; CI 0.02-0.30; p=0.001). At 1 year, multivariate analysis showed an associated increase in mortality when NTProBNP = 7500pg/ml (adjusted Hazard Ratio, aHR 1.64; CI 1.02-2.65; p=0.042) and Urea > 7mmol/L (aHR 1.86; CI 1.04-3.32, p=0.036). Medications on discharge comprising ACEi/ARB+BB+MRA were the only combination that showed a reduction in mortality (aHR 0.23; CI 0.09-0.60; p=0.003). At 3 years, background coronary artery disease (aHR 1.72; CI 1.09-2.71; p=0.02), hypernatraemia, Na > 145mmol/L (aHR 14.89; CI 3.17-69.86; p=0.001), EF < 40% (aHR 2.00; CI 1.28-3.12; p=0.002) were associated with increased mortality. Medications on discharge namely ACEi/ARB (aHR 0.14; CI 0.03-0.70; p=0.013), BB (aHR 0.23; CI 0.10-0.51; p<0.001), ACEi/ARB+BB (aHR 0.16; CI 0.06-0.41; p<0.001), ACEi/ARB+MRA (aHR 0.34; CI 0.14-0.85; p=0.021), BB+MRA (aHR 0.38; CI 0.17-0.83; p=0.016), ACEi/ARB+BB+MRA (aHR 0.193; CI 0.09-0.43; p<0.001) showed an associated reduction in mortality.

Conclusions: In this single centre study, patients with AF who presented with ADHF had a variety of mortality predictors that influence at different timelines. They had higher risk of inpatient mortality with hyponatraemia, hyperuricaemia and EF < 40%. Elevated NTProBNP and Urea levels seemed to have more effect on mortality at 1 year compared to 3 years. Having 3 disease-modifying heart failure medications at discharge exerted the most benefit up to 3 years of follow up.
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<table>
<thead>
<tr>
<th>GROUP</th>
<th>1 year (No at Risk)</th>
<th>1 year Survival %</th>
<th>2 years (No at Risk)</th>
<th>2 years Survival %</th>
<th>3 years (No at Risk)</th>
<th>3 years Survival %</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Fib</td>
<td>449</td>
<td>88.3 ± 0.13 %</td>
<td>81.0 ± 0.17 %</td>
<td>76.3 ± 0.20 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non A. Fib</td>
<td>1608</td>
<td>89.9 ± 0.06 %</td>
<td>84.6 ± 0.08</td>
<td>80.0 ± 0.10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ALL CAUSE MORTALITY AT FOLLOW UP

FOLLOW UP DURATION (YEAR)

Log Rank P = 0.105

CUM SURVIVAL

1.0
0.8
0.6
0.4
0.2
0.0

Non A. Fib Group

A. Fib Group