Optimising Care for People Who Inject Drugs: A retrospective medical record review of Staphylococcus Aureus bacteraemia treatment

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Background

Discharge against medical advice

• People who inject drugs (PWID) are at increased risk of suboptimal medical treatment due to discharge against medical advice (DAMA)\(^1\)

• Risk factors include poorly managed alcohol or other drug withdrawal, stigma, inadequate pain relief, discrimination, social stressors and inadequate hospital policies\(^2\)

• DAMA is associated with readmission and 40% higher risk of mortality\(^3\)

• Poor outcomes may be exacerbated by clinician focus on infectious nature of illness rather than complexity of addiction and socioeconomic factors

\(^1\)Onukwugha, Qual Saf Health Care, 2010
\(^3\) Yong, Int Med J, 2014
Background cont.

Staphylococcus Aureus bacteraemia (SAB)

- Most common pathogen associated with community and hospital acquired infection\(^1\)
- Injecting drug use increases risk
- PWID higher prevalence\(^2\)
- Associated with high mortality
- MSSA/MRSA
- International treatment guidelines recommend > 14 days IV antibiotics\(^3\)

\(^{2}\) Al-Rawahi, J Clin Micro, 2014
\(^{3}\) Holland, JAMA, 2014
DAMA vs. unplanned discharge

**Discharge against medical advice (DAMA)**

Refers to a patient who leaves suddenly, or directly against the advice of medical professionals or without prior consultation

*May also include:*
- Patients who abscond directly from the ward
- Patients who initiate a code black

**Early, unplanned discharge**

Refers to a patient who wishes to discharge early, however forms a treatment plan with their physician prior to leaving

*May include:*
- Provision of take-home oral antibiotics
- Referral to wrap around services
Study design and methods

Retrospective medical records review

Inclusion Criteria

• All patients with positive *S. Aureus* blood cultures admitted to SVHS between June 2015 and September 2018

Exclusion Criteria

• Patients admitted to private hospital, treated entirely as an outpatient or discharged from E.D.

Data collection

• Data collected: demographics, admission details, substance use history, infection characteristics, antibiotic therapies, comorbidities and service details
Outcome measures

**Primary outcome:**
To determine the proportion of patients with recent injecting drug use with SAB infection who completed at least 14 days of I.V. antibiotic therapy, compared with patients with SAB and no history of injecting drug use.

**Secondary outcomes:**
Proportion of cases who DAMA, group differences in separations data, readmission rates, comorbidities, infection characteristics, antibiotic therapy and substance use history and therapies.
### Results: Demographics

<table>
<thead>
<tr>
<th>Demographics</th>
<th>PWID</th>
<th>non-PWID</th>
<th>OR^a (95% CI^b)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total count, No. (%)</td>
<td>39 (23)</td>
<td>133 (77)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Male, No. (%)</td>
<td>23 (59)</td>
<td>98 (74)</td>
<td>0.5 (0.2-1.1)</td>
<td>0.077</td>
</tr>
<tr>
<td>Age, mean (SD)</td>
<td>43 (8.2)</td>
<td>65 (18.9)</td>
<td>-</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Documented homeless, No. (%)</td>
<td>7 (18)</td>
<td>0 (0)</td>
<td>*</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Hostel / boarding house, No. (%)</td>
<td>7 (18)</td>
<td>3 (2)</td>
<td>9.5 (2.3-38.7)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Unstable housing, No. (%)</td>
<td>14 (36)</td>
<td>3 (2)</td>
<td>24.3 (6.5-90.7)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Private health insurance, No. (%)</td>
<td>2 (5)</td>
<td>68 (51)</td>
<td>0.1 (0.0-0.2)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Documented unemployed, No. (%)</td>
<td>28 (72)</td>
<td>22 (17)</td>
<td>12.9 (5.6-29.6)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Australian born, No. (%)</td>
<td>35 (90)</td>
<td>89 (67)</td>
<td>4.3 (1.5-12.9)</td>
<td>0.005</td>
</tr>
</tbody>
</table>

^a OR, Odds Ratio; ^b CI, Confidence Interval; * OR not calculated as at least one 2x2 cell equalled 0
Patients who completed at least 14 days of I.V. antibiotics

Patients at risk of incomplete treatment

Patients who were discharged from hospital

<table>
<thead>
<tr>
<th></th>
<th>PWID (n=31)</th>
<th>non-PWID (n=42)</th>
<th>OR (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOS &lt; 14 days</td>
<td>12 (39)</td>
<td>7 (17)</td>
<td>3.2 (1.1-9.4)</td>
<td>0.034</td>
</tr>
<tr>
<td>LOS ≥ 14 days</td>
<td>19 (62)</td>
<td>35 (83)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Readmission rates

Proportion of patients who readmit within:

- 28 days +ve
- 28 days -ve
- 28 days overall
- 1 year

* * p<0.05
Secondary outcomes

41% (n=16) of current PWID Discharged Against Medical Advice (p<0.001). Current PWID accounted for all DAMA.

Increased psychiatric diagnoses (51%, n=20) and Hepatitis C (49%, n=19) amongst PWID (p<0.004)

PWID were more likely to be documented living in unstable housing (36% vs. 2%, p<0.001)

For PWID, those who DAMA were significantly more likely to be tobacco smokers (81% vs 49%, p=0.035)

81% (n=13) of PWID who DAMA were readmitted within 1yr, twice the rate of their non-DAMA counterparts (p=0.009)
Limitations and conclusions

- Data cannot be generalized to other populations including non-injecting drug use
- Retrospective reviews cannot determine causality, further prospective research is needed
- Inconsistent record keeping can reduce reliability of results
- PWID are significantly more likely to discharge prior to the recommended 14 days of IV antibiotics and DAMA, potentially leading to unfinished treatment and negative sequelae
- Addressing multiple intersecting social and health risk factors likely to be of benefit in supporting optimal treatment for SAB in this population
Next steps

- Collaboration with SVHM to increase sample size, generalisability and define predictor variables
- Phase 2 of the study: a qualitative assessment of reasons and rationale for people to leave hospital against medical advice (OCOP-2)
- Data from phase 1 and 2 to be used to inform an “intervention” to address discharge from hospital for PWID
- APSAD poster highlight
Thank You

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