Brief Alcohol Intervention For Hazardous Drinkers Admitted to the Emergency Department: A randomized controlled trial

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Research Team

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Background

- Brief alcohol intervention (BAI) reduces hazardous drinking in various medical settings, particularly in primary care (Saitz et al, 2006; Bertholet et al, 2004).

- Emergency department (ED) admission offers an opportunity to conduct BAI, but its efficacy in this setting is controversial.
Published BAI studies involving ED patients

Several studies suggest some efficacy of BAI with ED patients on drinking outcomes

- Chafetz et al, 1962
- Bernstein et al, 1997
- Wright et al, 1998
- Anti-Poiuka et al, 1998
- Gentillelo et al, 1999
- Monti et al, 1999
- Smith et al, 2003
- Spirito et al, 2004
- Bazargan-Hejazi et al, 2005

Additional studies suggest some efficacy of BAI with ED patients on alcohol-related outcomes (reduction alcohol-related accidents…)

- Bernstein et al, 1997
- Monti et al, 1999
- Forsberg et al, 2000
- Johnston et al, 2002
- Nordquist et al, 2005

Only 5 randomized controlled BAI studies evaluated the efficacy of BAI in ED, 2 of them found beneficial effects on drinking outcomes

- Smith et al, 2003
- Spirito et al, 2004
- Monti et al, 1999
- Chafetz et al, 1962
- Dauer et al, 2006
Limitations of published studies

- High refusal rates
- Low statistical power
- Control groups receiving more attention than standard care
- Most studies found positive outcome to some extent in the control group
Study objectives

1. To test the efficacy of BAI for patients admitted to the ED in modifying hazardous drinkers drinking pattern.

2. To test whether the often-found parallel reduction of alcohol use in control groups is due to the effect of assessing alcohol use and related problems acting like a minimal intervention.
Study Design

Consecutive ED admission

Admission during study recruitment periods

Study inclusion
11 am - 11 pm, 7 days a week, 18 months

Screening patients 18 years and older

Identification of hazardous drinkers

Hazardous drinking:
Men ≤ 65 years: >14 drinks per week, and/or > 4 drinks on an occasion at least monthly
Women + Men over 65: > 7 drinks per week and/or > 3 drinks on an occasion at least monthly

General health 11-item screen including 3 alcohol questions

Informed consent obtained

Randomization

Assessment + BAI

Follow-up 12-month

Control with assessment

Follow-up 12-month

Control without assessment

Follow-up 12-month
Research assistants

- 7 baseline research assistants (6 master-level psychologists and 1 ED nurse) conducted screening, assessment and BAI.
- Training included a 2-day workshop on motivational interviewing and a 7-day BAI and research procedures training.
- 3 different follow-up research assistants conducted follow-up telephone interviews.
Screening

- Cholesterol level
- Primary care physician
- Tobacco use
- Drug use
- Depression
- Immunization

**Alcohol**
- Quantity
- Frequency
- Frequency of heavy drinking episodes (♂ : > 4 drinks; ♀ [♂ > 65 +] > 3 drinks).
Assessment (except for control group w/out assessment)

Variables considered for these analyses were:
- Alcohol use questions of the screening
- Socio-demographic information
- AUDIT (score > 12 considered alcohol dependent).

Relevant variables were determined based on prior BAI studies suggesting that certain subgroups were more likely to benefit from BAI (age, gender, medical condition, alcohol dependence).
Brief Alcohol Intervention

Using an empathic style avoiding any confrontation
1. Thank for participation, reassure about confidentiality and assure that any decision about treatment belongs to the patient.
2. Give feedback about alcohol use.
3. Ask patient to comment about feedback. Ask permission and provide comment regarding the association between alcohol use and risk of injury or other medical conditions.
4. Ask about the “pros” and “cons” of individual’s alcohol use.
5. Ask about importance to change and readiness to change on 1-10 scale.
6. Ask what objective patient feels ready to complete.
7. Depending on patient’s own objective, affirm patient’s self-efficacy to achieve his/her objective.
8. Give a summary document including patient’s own:
   - AUDIT score (using data of the intake assessment)
   - Percentile AUDIT score compared to the general population
   - Objectives (timeframe, setting of drinking moderation…).
Follow-up

The variable considered for these analyses were:

- Alcohol use screening questions:
  - Quantity
  - Frequency
  - Frequency of heavy drinking episodes (♂: > 4 drinks; ♀ [♂ ≥ 65+] > 3 drinks)

- AUDIT
Results - Sample

8833 screened

2192 screened positive (24.8 %)

1366 randomized (62.3 %)

486 BAI + assessment

543 Assessment

337 Control without assessment

1055 with 12-month follow-up (77.2%)

367 follow-up

429 follow-up

259 follow-up

Refused: 426
Low risk drinker: 97
Alcohol-related treatment: 41
Other: 262

Æ Low risk drinker: 6592 (74.6%)
Æ Drinking status undetermined: 48
Æ Other: 1
Patients’ characteristics

- 1366 patients, including 1064 men (78%) and 302 women (22%)
- Mean age 38.7 (17.31) years
- 68% Swiss
- 59% employed
- 987 (72%) trauma
- 379 (28%) other surgery (general, urology neurosurgery, other)
## Patients’ Characteristics by Group at Intake

<table>
<thead>
<tr>
<th></th>
<th>Brief alcohol intervention</th>
<th>Control with assessment</th>
<th>Control w/out assessment</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 1366</td>
<td>486</td>
<td>543</td>
<td>337</td>
<td></td>
</tr>
<tr>
<td>% Men</td>
<td>76.1</td>
<td>79.0</td>
<td>78.6</td>
<td>0.50</td>
</tr>
<tr>
<td>% 18-30</td>
<td>43.4</td>
<td>41.0</td>
<td>51.3</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>% Swiss</td>
<td>68.1</td>
<td>68.3</td>
<td>-</td>
<td>0.73</td>
</tr>
<tr>
<td>% Employed</td>
<td>59.3</td>
<td>59.1</td>
<td>-</td>
<td>1.00</td>
</tr>
<tr>
<td># Days drinking per week (last 12-mo) (SD)</td>
<td>3.7 (2.4)</td>
<td>3.8 (2.5)</td>
<td>3.6 (2.4)</td>
<td>0.48</td>
</tr>
<tr>
<td># Drinks per drinking occasion (last 12-mo) (SD)</td>
<td>4.3 (3.1)</td>
<td>4.0 (2.7)</td>
<td>3.9 (2.4)</td>
<td>0.24</td>
</tr>
<tr>
<td># Heavy drinking episodes per mo (last 12-mo) (SD)</td>
<td>4.9 (7.4)</td>
<td>4.6 (7.1)</td>
<td>4.1 (6.3)</td>
<td>0.26</td>
</tr>
<tr>
<td>AUDIT score (SD)</td>
<td>9.4 (4.7)</td>
<td>8.8 (5.1)</td>
<td>-</td>
<td>0.06</td>
</tr>
<tr>
<td>Alcohol Use Characteristics by Group at Follow-up</td>
<td>Brief alcohol intervention</td>
<td>Control with assessment</td>
<td>Control w/out assessment</td>
<td>P value</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>----------------------------</td>
<td>-------------------------</td>
<td>--------------------------</td>
<td>---------</td>
</tr>
<tr>
<td><strong>N = 1055 (77.2 %)</strong></td>
<td>367</td>
<td>429</td>
<td>259</td>
<td></td>
</tr>
<tr>
<td><strong>12-month follow-up data</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># Days drinking per week (last 12-mo) (SD)</td>
<td>3.3 (2.3)</td>
<td>3.4 (2.5)</td>
<td>3.1 (2.4)</td>
<td>0.29</td>
</tr>
<tr>
<td># Drinks per drinking occasion (last 12-mo) (SD)</td>
<td>3.5 (2.6)</td>
<td>3.4 (2.5)</td>
<td>3.4 (2.5)</td>
<td>0.63</td>
</tr>
<tr>
<td># Heavy drinking episodes per mo (last 12-mo) (SD)</td>
<td>3.7 (6.0)</td>
<td>3.6 (6.3)</td>
<td>3.6 (6.4)</td>
<td>0.98</td>
</tr>
<tr>
<td>AUDIT score (SD)</td>
<td>7.5 (4.7)</td>
<td>7.0 (4.3)</td>
<td>7.3 (4.7)</td>
<td>0.32</td>
</tr>
</tbody>
</table>
## Intake to 12-month Difference in Drinking Pattern

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<thead>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># Days drinking per week (last 12-mo) (SD)</td>
<td>-0.4 (1.8)</td>
<td>-0.4 (1.8)</td>
<td>-0.5 (2.0)</td>
<td>0.59</td>
</tr>
<tr>
<td># Drinks per drinking occasion (last 12-mo) (SD)</td>
<td>-0.4 (2.5)</td>
<td>-0.5 (2.8)</td>
<td>-0.4 (2.7)</td>
<td>0.90</td>
</tr>
<tr>
<td># Heavy drinking episodes per mo (last 12-mo) (SD)</td>
<td>-0.7 (7.0)</td>
<td>-0.7 (6.2)</td>
<td>-0.3 (6.8)</td>
<td>0.58</td>
</tr>
<tr>
<td>AUDIT score (SD)</td>
<td>-1.8 (3.8)</td>
<td>-1.9 (4.6)</td>
<td>-</td>
<td>0.94</td>
</tr>
<tr>
<td>% Changed to low-risk drinking at follow-up</td>
<td>35.7</td>
<td>35.2</td>
<td>37.1</td>
<td>0.88</td>
</tr>
</tbody>
</table>
### 12-month follow-up in subgroups

% changed to low-risk drinking at follow-up

<table>
<thead>
<tr>
<th>% changed to low-risk drinking at follow-up</th>
<th>Brief alcohol intervention</th>
<th>Control with assessment</th>
<th>Control w/out assessment</th>
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<tr>
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</tr>
<tr>
<td>N</td>
<td>367</td>
<td>429</td>
<td>259</td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>31.6</td>
<td>33.0</td>
<td>33.1</td>
<td>0.92</td>
</tr>
<tr>
<td>18-30 years</td>
<td>35.6</td>
<td>29.7</td>
<td>32.8</td>
<td>0.55</td>
</tr>
<tr>
<td>31-50 years</td>
<td>30.6</td>
<td>33.6</td>
<td>36.9</td>
<td>0.63</td>
</tr>
<tr>
<td>51-65 years</td>
<td>39.7</td>
<td>44.0</td>
<td>50.0</td>
<td>0.63</td>
</tr>
<tr>
<td>66+</td>
<td>45.9</td>
<td>43.2</td>
<td>42.9</td>
<td>0.96</td>
</tr>
<tr>
<td>AUDIT &gt; 12</td>
<td>46.3</td>
<td>37.3</td>
<td>-</td>
<td>0.38</td>
</tr>
<tr>
<td>Trauma</td>
<td>35.6</td>
<td>37.0</td>
<td>37.0</td>
<td>0.71</td>
</tr>
</tbody>
</table>
### GEE models predicting change to low risk drinking at 12 month follow-up

<table>
<thead>
<tr>
<th>N = 796</th>
<th>Odds-ratio</th>
<th>CI 95 %</th>
<th>Wald</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAI</td>
<td>1.00</td>
<td>[0.74 – 1.33]</td>
<td>0.03</td>
<td>0.87</td>
</tr>
<tr>
<td>Men</td>
<td>0.56</td>
<td>[0.41 – 0.76]</td>
<td>14.18</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>18-30 years</td>
<td>0.96</td>
<td>[0.79 – 1.15]</td>
<td>0.22</td>
<td>0.64</td>
</tr>
<tr>
<td>51-65 years</td>
<td>1.47</td>
<td>[1.17 – 1.85]</td>
<td>10.72</td>
<td>0.001</td>
</tr>
<tr>
<td>66+</td>
<td>1.57</td>
<td>[1.06 – 2.35]</td>
<td>4.99</td>
<td>0.025</td>
</tr>
<tr>
<td>AUDIT &gt; 12</td>
<td>1.54</td>
<td>[1.16 – 2.03]</td>
<td>9.24</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Trauma</td>
<td>0.96</td>
<td>[0.74 – 1.24]</td>
<td>0.10</td>
<td>0.76</td>
</tr>
<tr>
<td>(Intercept)</td>
<td>0.74</td>
<td>[0.59 – 0.93]</td>
<td>6.69</td>
<td>0.01</td>
</tr>
</tbody>
</table>

- Covariates determined based on prior BAI
- GEE model adjusted for clustering of patients by intake research assistant
Discussion - Efficacy

BAI did not influence a change to low-risk drinking over the 12-month follow-up

- This null finding applied also for patients previously considered likely to benefit from BAI, i.e., non alcohol-dependent hazardous drinkers and young patients attending the ED after a trauma.

- Limitations to the efficacy of BAI observed may be explained by
  - The setting: a busy environment, noisy, frequent interruptions may hinder the empathic style of BAI
  - A large proportion of young patients with minor trauma who may be using ED as a primary care
  - A single intervention without booster session.
Discussion – Parallel reduction in control group

35 % initially hazardous drinkers changed to low-risk drinking at follow-up, also in control groups

- Two possible explanations for this finding:
  - a regression to the mean effect
    - May explain the reduction in alcohol use observed across all groups, but not the absence of an additional effect of BAI on drinking outcomes
  - an assessment effect
    - But the study suggests that the alcohol assessment at baseline did not influence drinking pattern over the 12-month follow-up (no difference in outcome between control groups)
    - A possible explanation may be that already very short, simple screening questions or expectation of follow-up were as efficient as more intense assessment
Conclusion

- BAI in ED did not influence hazardous drinking
- The reduction of alcohol use in control groups is not due to the effect of assessing alcohol use and related problems
- The positive outcome observed also in control groups may be explained either by a regression to mean effect and/or an effect related to the very short screening or to the expectation of the 12-month follow-up
Conclusion

- ED may be not be an appropriate setting for BAI
- ED may be more appropriate for screening and referral rather than for BAI itself, as suggested in earlier studies (Chafetz et al, 1962; Crawford et al, 2004)

Thank you!