A pilot study of abrupt versus gradual smoking cessation in combination with electronic nicotine devices for smokers receiving alcohol and other drug treatment

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Background
People receiving alcohol and other drug (AOD) treatment have high tobacco smoking rates and low quit rates.

Vapourised Nicotine Products (VNPs) may be a potential quit smoking strategy for persons receiving drug and alcohol treatment.

There are two identified methods for quitting smoking, the first is gradual cessation which involves reducing the number of cigarettes over a set period of time before complete abstinence while the second, abrupt, involves setting a quit date and stopping on that date.

The feasibility of using a pharmacological strategy such as an VNP in conjunction with a cessation strategy in combination is yet to be examined.

Aim
1. To test the effectiveness of abrupt versus gradual reduction cessation strategies at improving cessation and reducing cigarettes smoked per day;
2. Measure preferences for abrupt cessation vs gradual reduction strategies;
3. Assess adherence to abrupt cessation vs gradual reduction schedules.

Methods
Design: Pragmatic randomised controlled trial between April 2018 and July 2019.
Participants: Sixty participants recruited from two AOD programs
Intervention: 21mg Patches, 12mg nicotine e-liquid, Innokin Endura T18 and T22. Randomisation to gradual (personalised one month quit program) or abrupt cessation strategies.
Procedures: Online baseline survey and 12-week follow-up survey.

Results
Abstinence from tobacco smoking
Of the 52 participants that completed the 12-week survey (86.6% retention), 25% (n=15/60) self-reported 7-day point prevalence abstinence. Of these, 8% (n=29.6%) in the gradual reduction group and 29.2% (n=7) in the abrupt cessation group reported abstinence, which was not significantly different. See Table 1 for further abstinence results.

Cigarettes per day
Overall, there was a reduction in cigarettes per day (CPD) from baseline to the week 12 follow-up. See figure 1.

Adherence to abrupt vs gradual cessation
At the 12-week follow-up survey less than half (n=11, 44%) of participants randomised to the gradual cessation condition reported using the gradual cessation plan at the week 12 survey. At the 12-week follow-up survey, over two thirds (n=17, 71%) of participants randomised to the abrupt cessation condition reported quitting smoking on their quit date.

Quit type preference
At baseline, 60% (n=18) of participants randomised to the gradual cessation group had reported at baseline that gradual reduction was their preferred strategy and 33.3% (n=10) of participants randomised to abrupt cessation had reported that abrupt cessation was their preferred quit strategy at baseline.

Adherence to VNPs
At the 12-week survey, nearly all participants in the gradual cessation (n=26, 96.2%) and abrupt cessation conditions (n=23, 95.8%) reporting using the provided VNP and prescription e-liquid throughout the study intervention period.

Table 2. Self-reported and biochemically verified 7-day point prevalence abstinence at 6 weeks and 12-weeks by group

<table>
<thead>
<tr>
<th>Cessation</th>
<th>Gradual</th>
<th>Abrupt</th>
<th>OR (95% CI)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-reported 7-day point prevalence abstinence at 12-weeks Intention to treat</td>
<td>8/35 (22.9%)</td>
<td>7/32 (21.9%)</td>
<td>0.95 (0.30-2.99)</td>
<td>0.923</td>
</tr>
<tr>
<td>Self-reported 7-day point prevalence abstinence at 12-weeks Complete cases</td>
<td>8/27 (29.6%)</td>
<td>7/24* (29.2%)</td>
<td>0.98 (0.29-3.27)</td>
<td>0.971</td>
</tr>
<tr>
<td>Carbon monoxide-validated 7 day point prevalence abstinence at 12 weeks Complete cases</td>
<td>8/27 (29.6%)</td>
<td>3/24* (12%)</td>
<td>0.34 (0.08-1.49)</td>
<td>0.148</td>
</tr>
<tr>
<td>Self-reported 6 week continuous abstinence at 12-weeks</td>
<td>8/27 (29.6%)</td>
<td>9/24* (39.1%)</td>
<td>1.53 (0.47-4.95)</td>
<td>0.481</td>
</tr>
</tbody>
</table>

• This study found that, for people using VNPS to quit smoking, abrupt cessation or gradual reduction methods are likely to be equally effective and acceptable suggesting that smokers should be encouraged to use the method they prefer and are more likely to adhere to. Further research examining optimal quit support strategies for smokers using VNPS to quit is warranted.

Discussion
• This study found that, for people using VNPS to quit smoking, abrupt cessation or gradual reduction methods are likely to be equally effective and acceptable suggesting that smokers should be encouraged to use the method they prefer and are more likely to adhere to. Further research examining optimal quit support strategies for smokers using VNPS to quit is warranted.

Figure 1. Number of cigarettes per day by group at baseline and 12-weeks post intervention implementation