

Smoking cessation

Are e-cigarettes more effective than nicotine replacement therapy to help smokers quit?

One year smoking cessation rates were significantly higher in those who used e-cigarettes compared with those using traditional nicotine replacement therapy (NRT) products, in a UK prospective study. However, many more of those on e-cigarettes who had quit ordinary cigarettes still used the substitute while most of those who quit using NRT were free from treatment.

A total of 2,045 individuals attending stop smoking services in London, Leicester and East Sussex were screened. Of these, 886 were randomised to the e-cigarette group (439) or NRT group (447). The median age of participants was 41 years. All participants received multisession behavioural support.

The NRT group were offered whichever product or combination of products (typically a short-acting NRT product with a long-acting one) they wanted and were free to change products during the study. In line with standard practice, they were given a three-month supply. The e-cigarette group were given a starter pack with an atomiser and 18 mg/ml nicotine liquid and were encouraged to buy further supplies.

Participants' levels of expired carbon monoxide (CO) were checked at baseline, four weeks, and 52 weeks. Adverse reactions and respiratory symptoms were recorded at all visits.

The primary outcome measure was sustained abstinence at one year

according to the Russell Standard i.e. a self-report of smoking no more than five cigarettes from two weeks after the target quit date, validated biochemically by an expired CO < 8 ppm.

Overall, 78.8% of participants completed the 52-week follow-up. The rate of sustained one year abstinence was 18.0% in the e-cigarette group and 9.9% in the NRT group; relative risk (RR) 1.83 (95% CI: 1.30-2.58; P < 0.001).

Adherence was similar in both groups, but e-cigarettes were used more frequently and for longer than NRT. Among participants with one year abstinence, 80% (63 of 79) were using e-cigarettes at 52 weeks in the e-cigarette group and 9% (4 of 44) were using nicotine replacement in the NRT group.

E-cigarettes were felt to be more satisfying but throat or mouth irritation was reported more frequently in this group; 65.3 vs 51.2% in the NRT group. Nausea occurred more frequently in the NRT group 37.9 vs 31.3%.

The e-cigarette group reported greater reductions in the incidence of cough and phlegm production from baseline to 52 weeks than the NRT group; RR for cough 0.8 (95% CI: 0.6-0.9); RR for phlegm 0.7 (95% CI: 0.6-0.9).

The main concern with this study is that it was not blinded. Nevertheless, there does seem to be a clear indication that e-cigarettes produced better outcomes for quitting smoking than NRT. The difficulty, though, is that 12 months on, many more of those on e-cigarettes who had quit regular cigarettes still used the substitute while most of those who quit using NRT were free from treatment.

In accompanying editorials, the concern is raised that although e-cigarettes seem useful in quit strategies they may offer an undesirable model to youngsters, encouraging them to take up the alternative habit.¹ This is potentially made worse by offering nicotine liquids in a range of flavours.²

DR PETER SAUL

Hajek P, Phillips-Waller A, Przulj D et al. A randomized trial of e-cigarettes versus nicotine-replacement therapy. *N Engl J Med* 2019;380:629-37

REFERENCES

- 1 Borrelli B, O'Connor GT. E-cigarettes to assist with smoking cessation. *N Engl J Med* 2019;380:678-79
- 2 Drazen JM, Morrissey S, Campion EW. The dangerous flavors of e-cigarettes. *N Engl J Med* 2019;380:679-80

Cardiovascular disease

Cuffless vs standard devices for ambulatory blood pressure monitoring

A novel cuffless device recorded significantly higher values for both systolic and diastolic blood pressure (BP) compared with standard equipment for 24-hour ambulatory BP monitoring, in a small study from Switzerland.

Data were analysed for 71 adults recruited at the University Hospital, Basel between May and December 2017. Patients with an indication for 24-hour ambulatory BP measurement were consecutively recruited as well as healthy volunteers. The mean age of participants was 49.3 years, and 51% were male.

Cuffless BP using the Somnotouch-NIBP, a device that uses pulse transit time (PTT) for beat to beat calculation, and standard 24-hour BP measurements were performed simultaneously on the left and right arm, respectively. The first standard BP measurement was used as the calibration measurement for the cuffless BP.

The cuffless device had only been previously validated over a very short time period - 25 minutes after initial calibration in a laboratory in the absence of dynamic conditions.

Mean 24-hour BP values for cuffless BP and standard BP were 140.8 versus 134.0 mmHg (P < 0.0001) for systolic and 85.8 versus 79.3 mmHg (P < 0.0001) for diastolic BP, respectively. Mean absolute systolic and diastolic disagreements between cuffless and standard BP were 10.2 and 8.2 mmHg, respectively.

The number of absolute differences between the mean 24-hour BP values

of the cuffless and standard BP within 5, 10 and 15 mmHg were 23 (32.4%), 43 (60.6%) and 53 (74.6%) for systolic and 24 (33.8%), 51 (71.8%) and 65 (91.6%) for diastolic measurements, respectively.

Current hypertension guidelines advocate the use of 24-hour ambulatory BP monitoring to secure the diagnosis of hypertension. The standard monitoring devices use an appropriately sized upper arm cuff attached to an oscillometric device. The repeated cuff inflations, particularly during the night can be poorly tolerated by some patients and potentially nocturnal readings may be artificially elevated, all of which can limit the clinical usefulness of monitoring. Novel devices which do not utilise an upper arm cuff were thought to offer a possible solution to this problem.

The study authors conclude: 'The present analysis shows higher ambulatory BP levels by the non-invasive, cuffless, PTT-based device in comparison with a validated cuff-based device over 24 hours. Due to the higher BP levels there is a risk of misclassification of normotensive patients into hypertensive with possible overtreatment when usual cut-off values are applied.'

'Further studies are needed to improve the accuracy of the device or to derive device-specific cut-off points,' they add.

This study demonstrates the importance of robust clinical evaluation for emerging medical technology to prevent the premature introduction of novel devices.

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Krisai P, Vischer AS, Kilian L et al. Accuracy of 24-hour ambulatory blood pressure monitoring by a novel cuffless device in clinical practice. *Heart* 2019;105:399-405

Addiction

Alcohol use disorder affects offspring's behaviour in adulthood

Parental alcohol use disorder is associated with an increased likelihood of marriage to a spouse with alcohol use disorder, a Swedish population-based study has found. In particular, daughters of affected mothers were more likely to have an affected spouse.

More than one million individuals (1,171,070) born in Sweden between 1965 and 1975 for whom data on parental alcohol use disorder were available were included in the study. Just over half (51.4%) were male. Data on the participants were obtained from a number of national Swedish population registry datasets.

Individuals were classified as having a lifetime history of alcohol use disorder if they had been given an alcohol-related primary or secondary medical diagnosis, a minimum of two alcohol-related registrations in the Swedish Crime and Suspicion register (for example drink driving); or had a record of being prescribed a drug used in the treatment of alcohol disorders (for example, disulfiram, acamprosate).

Having a parent affected by alcohol use disorder increased the odds of marrying an affected spouse for both male and female offspring; odds ratio (OR) 1.47 (95% CI: 1.38-1.57) and OR 1.63 (95% CI: 1.56-1.70) respectively. The effects were more pronounced for those with two compared with one affected parent; OR 1.35 (95% CI: 1.09-1.67) for men and OR 1.36 (95% CI: 1.18-1.55) for women.

Daughters of affected mothers were

more likely to have husbands with alcohol use disorder OR 1.68 (95% CI: 1.54-1.84) compared with those of affected fathers OR 1.56 (95% CI: 1.48-1.64), while there was no difference for sons.

All associations remained after correction for various confounding factors.

A parental history of alcohol use disorder was also associated with a higher likelihood of marriage under the age of 25 but a lower likelihood of marriage after the age of 25, compared with those with no parental history of alcohol disorder. These associations were stronger when an individual had two affected parents rather than one.

Having a parent with alcohol use disorder is known to be associated with a range of psychosocial difficulties in adult life. The authors of this study have shown an impact on marital behaviour for those with a parent who misused alcohol and note that those who are themselves at higher risk of developing an alcohol use disorder because of parental history are more likely to find themselves in the least protective marital environments.

The authors conclude by stating they hope this knowledge will help clinicians and support groups raise awareness that a parental history of alcohol use disorder can further negatively shape the environment of offspring and increase their risk for alcohol use disorder.

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Salvatore JE, Larsson Lonn S, Long EC et al. Parental alcohol use disorder and offspring marital outcomes. *Addiction* 2018;114:81-91

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