Smoking cessation

Benefits of quitting outweigh the risks of weight gain

The cardiovascular and overall mortality benefits of stopping smoking far outweigh the risks of weight gain and acquiring type 2 diabetes, a study from the United States has shown.

The investigators used data from three large US-based longitudinal cohort studies (the Nurses' Health Study, the Nurses' Health Study II and the Health Professionals Follow-up Study) to evaluate changes in smoking status and weight, and the development of type 2 diabetes. Deaths from cardiovascular causes and all-cause mortality were recorded.

Patients with prevalent diabetes, cardiovascular disease (CVD) and cancer were excluded from analyses of the risk of type 2 diabetes to reduce the chance of including individuals who had stopped smoking because of other health conditions. Likewise patients with CVD and cancer were excluded from the mortality analyses. Patients were followed up by questionnaire every two years and deaths were identified through the National Death Index among other sources.

During a mean follow-up of 19.6 years, 12,384 confirmed cases of type 2 diabetes were recorded. For recent quitters (2-6 years since smoking cessation) the risk of type 2 diabetes was higher than for those who continued to smoke; hazard ratio (HR) 1.22 (95% CI: 1.12-1.32). The risk was highest 5 to 7 years after quitting and then gradually decreased with time. The increased risk of developing type 2 diabetes was directly proportional to weight gain, and the risk was not increased among quitters who did not gain weight (P < 0.001 for interaction).

For the mortality analyses, the authors documented 23,867 deaths, 5,492 of which were due to CVD. Cardiovascular mortality decreased substantially after quitting, reaching a low point at 10 to 15 years. Compared with current smokers, the hazard ratios for death from cardiovascular disease were:

- HR 0.69 (95% CI: 0.54-0.88) among recent quitters without weight gain
- HR 0.47 (95% CI: 0.35-0.63) among those with weight gain up to 5.0 kg
- HR 0.25 (95% CI: 0.15-0.42) among those with weight gain of 5.1 to 10.0 kg
- HR 0.33 (95% CI: 0.18-0.60) among those with weight gain > 10.0 kg
- HR 0.50 (95% CI: 0.46-0.55) for longer-term quitters (> 6 years since smoking cessation)

Similar associations were observed for death from all causes.

Despite a temporary rise in the risk of type 2 diabetes after smoking cessation, particularly among quitters who gained weight, both cardiovascular and all-cause mortality decreased on smoking cessation, and the reduction was largely sustained during extended duration of smoking cessation, even among those who had gained weight.

The author of an accompanying editorial comments: 'For clinicians, the main message is that the cardiovascular and overall mortality benefits of stopping smoking far outweigh the risks of acquiring type 2 diabetes.'[1]

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Diabetes

Controlling risk factors in type 2 diabetes reduces excess risk

Patients with type 2 diabetes who have well controlled risk factors have little or no excess risk of stroke, myocardial infarction (MI) or death, a retrospective cohort study has found.

Data from the Swedish National Diabetes Register recorded between 1998 and 2012 were analysed. Overall, 271,174 patients with type 2 diabetes were included in the study along with 1,355,870 matched controls.

The mean age of the patients was 60.6 years and around half were women. The end points were death from any cause; MI; stroke; and hospitalisation for heart failure. The last three categories included both fatal and non-fatal events.

The populations were stratified with respect to five risk factors: elevated HbA_{1c}, elevated LDL-cholesterol, albuminuria, smoking and elevated blood pressure (BP).

It is worth noting that the HbA_{1c} level considered for a zero risk was 5.74-6.68% - rather tighter than would be considered safe on some oral hypoglycaemic regimens.

Cox regression statistical analysis was used to examine the relationship between these risk factors and the end points.

During a median follow-up period of 5.7 years there were 175,345 deaths, 37,825 patients with diabetes (13.9%) and 137,520 controls (10.1%).

Type 2 diabetes patients with no risk factor variables outside the target ranges had only a marginally higher risk of death than the controls; hazard ratio (HR) 1.06 (95% CI: 1.0-1.12). The hazard ratios for MI and stroke were HR 0.84 (95% CI: 0.75-0.93) and

HR 0.95 (95% CI: 0.84-1.07) respectively.

However, the excess risk of heart failure was substantially higher compared with controls, HR 1.45 (95% CI: 1.34-1.57)

There was a stepwise increase in the hazard ratios for each additional variable that did not meet the target range in patients with diabetes.

The strongest predictor for death was smoking and the strongest predictor for MI and stroke was raised HbA_{1c}.

Previous individual risk factor controlled trials have shown reductions in cardiovascular outcomes and deaths, and the Steno-2 study confirmed long-term reductions in mortality and morbidity from lifestyle and drug interventions.[1]

This study shows that effective control of risk factors can reduce the excess risk of cardiovascular events and death to that of individuals without diabetes.

An accompanying editorial comments that the results 'provide clear support for active management of risk factors.'[2] In my opinion, the results are further support for the intensive lifestyle interventions currently being considered with new onset diabetes, and vigorous treatment of risk factors in established cases. The low HbA_{1c} targets will add to the debate about hypoglycaemia risks.

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Addiction

Tramadol associated with longer use of opioids after surgery

A study from the United States has found that patients prescribed tramadol for postoperative pain have a higher risk of prolonged opioid use relative to those given other short-acting opioids.

The authors undertook a retrospective observational study of opioid-naïve patients undergoing elective surgery between 2009 and 2018 using insurance claims data from a large private US health plan.

Overall 444,764 patients fulfilled the inclusion criteria of having at least 180 days of follow-up information. Of these, 357,884 filled a discharge prescription for one or more opioids following one of the 20 elective surgical operations identified in the study. These included a range of general surgical (for example, hernia repair and laparoscopic cholecystectomy), orthopaedic (including total knee replacement and carpal tunnel release), and colorectal, urological and thoracic procedures, in order to cover multiple specialties and a range of expected postoperative pain levels.

For analysis three commonly used definitions of prolonged opioid use were used:

- Additional opioid use post surgery (at least one opioid prescription filled 90-180 days after surgery)
- Persistent opioid use after surgery (any span of opioid use starting in the 180 days after surgery and lasting at least 90 days)
- The CONSORT definition of long-term opioid use (opioid use episode starting in the 180 days after surgery that spans at least 90 days and includes either ten or more opioid fills or 120 or more days' supply of opioids).

The most commonly prescribed opioid post-surgery was hydrocodone (53.0% of those prescribed a single opioid), followed by short-acting oxycodone (37.5%). Tramadol was relatively infrequently prescribed (4.0%).

The unadjusted risk of additional opioid use after surgery was 7.10% (n = 31,431); the figure for persistent opioid use was 1.0% (n = 4,457); and 0.5% of patients (n = 2,027) met the CONSORT definition of long-term opioid use.

Use of tramadol post surgery was associated with increased adjusted risk of all three definitions of prolonged opioid use, see table 1, below. Tramadol prescribing as a single opioid was associated with a 6% increase in the adjusted risk of additional opioid use relative to people receiving other short-acting opioids, a 47% increase in the adjusted risk of persistent opioid use and a 41% »

Table 1

Adjusted risk ratios for persistent opioid use (95% CI)

Opioid type	Additional opioid use after surgery	Persistent opioid use after surgery	CONSORT definition of opioid dependence
Other short acting	Reference	Reference	Reference
Tramadol only	1.06 (1.00-1.13); P = 0.049	1.47 (1.25-1.69); P < 0.001	1.41 (1.08-1.75); P = 0.013
Tramadol + short acting	1.05 (0.96-1.14); P = 0.261	1.04 (0.86-1.21); P = 0.685	1.40 (1.05-1.74); P = 0.022
Any long acting	0.95 (0.87-1.03); P = 0.218	1.18 (1.02-1.35); P = 0.029	1.69 (1.36-2.02); P < 0.001