Impact of Smoking on Cardiovascular Events in Patients With Stable Coronary Disease Receiving Contemporary Medical Therapy: A Post Hoc Analysis of the Treating to New Targets Trial

INTRODUCTION

The cardiovascular benefits of smoking cessation for patients with coronary heart disease (CHD) are beyond dispute.1,2

Systematic analyses have been performed to estimate the risk of continued smoking,3; however, some of the primary literature cited in these reviews is limited by incomplete information regarding known evidence-based pharmacologic therapies for established CHD.1,2

Smoking exerts detrimental effects through multiple pathophysiological mechanisms, but several of these might be attenuated or ameliorated among patients receiving statin therapy. One might speculate that the cardiovascular effects of smoking in the era of modern medical therapy, are not as pronounced as those reported in older studies.1,3

The aim of this post hoc analysis of the Treating to New Targets (TNT) trial is to define more accurately the cardiovascular event rates based on smoking status in a contemporary cohort of patients with coronary disease receiving excellent medical treatment.

METHODS

• The design and the results of the TNT trial have been described and published previously.4,5

• In summary, TNT was a double-blind, parallel group trial in which 10,001 patients between the ages of 35 and 75 with CHD and low-density lipoprotein cholesterol (LDL-C) levels $\geq 3.4$ mmol/L (130 mg/dL) after an 8-week run-in period on atorvastatin 10 mg/day were randomly assigned to either atorvastatin 80 mg/day or 10 mg/day and followed for a median of 4.9 years.

• Mean LDL-C levels throughout the trial averaged 2.6 mmol/L (100 mg/dL) in the 10 mg/day group and 2.1 mmol/L (80 mg/day) in the 80 mg/day group.

• The primary endpoint, major cardiovascular events (MCVE), a composite of cardiac death, myocardial infarction, stroke, or resuscitated cardiac arrest, occurred in 10.9% of patients in the 10 mg/day group and 8.7% of those in the 80 mg/day group.

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• Among the 10,001 patients, at baseline 2338 (23%) had never smoked, 6322 (63%) were former smokers, and 1341 (13%) were current smokers.

• Overall, the rate of MCVE was significantly higher among current smokers compared to both former and never smokers (both $P<0.001$) (Figure 1) (Table 1). The unadjusted risk of the primary endpoint was similar between former smokers and current smokers (HR = 1.01 95% CI: 0.85, 1.20).

• Compared to never smokers, current smokers at baseline were younger, and the primary characteristics of patients according to smoking status are listed in Table 1.

• Former smokers were less likely to have hypertension and diabetes and were more likely to have a lower BMI and paroxysmal atrial fibrillation. The baseline clinical characteristics of patients according to smoking status are listed in Table 1.

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• As shown in Table 2, current smokers had significantly higher levels of LDL-C and triglycerides at baseline, and lower HDL-C levels compared to former or never smokers.

RESULTS

• Among the 10,001 patients, at baseline 2338 (23%) had never smoked, 6322 (63%) were former smokers, and 1341 (13%) were current smokers. Overall, 4995 (50%) received atorvastatin 80 mg/day and 5006 (50%) received atorvastatin 10 mg/day. The baseline clinical characteristics of patients according to smoking status are listed in Table 1.

• Compared to never smokers, current smokers at baseline were younger, and were more likely to have hypertension and diabetes. Current smokers were also less likely to have a lower BMI and paroxysmal atrial fibrillation.

CONCLUSIONS

• Smoking cessation yields a large benefit to coronary patients receiving modern medical therapy, with a NNT of 22–25 to prevent a MCVE over 5 years.6

• Smoking cessation deserves greater emphasis in secondary prevention of CHD.

• Smoking remains a substantial risk factor even with intensive statin treatment, and the odds ratios for MCVEs was no different than they were before the era of modern medical management.

REFERENCES


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