Women Who Quit Smoking Do Live Longer

By John Gever, Senior Editor, MedPage Today; Published: October 26, 2012
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- Note that deaths from lung cancer were reduced markedly in quitters as well, irrespective of participants' age when they stopped smoking.

Life expectancy was dramatically improved among participants in Great Britain's Million Women Study who quit smoking compared with continuous smokers, confirming the previously uncertain benefits of smoking cessation in women, researchers said.

Although women who stopped smoking around age 50 remained at significantly higher risk of all-cause mortality compared with never-smokers (relative risk 1.56, 95% CI 1.49 to 1.64), it was much lower than the tripled risk of death seen in current smokers, according to Kirstin Pirie, MSc, of the University of Oxford in England, and colleagues.

"Even cessation at about 50 years of age avoids at least two-thirds of the continuing smoker's excess mortality in later middle age," the researchers wrote online in *The Lancet*.
Deaths from lung cancer were reduced markedly in quitters as well, irrespective of participants' age when they stopped smoking, Pirie and colleagues reported.

The Lancet published the report the day before the 100th anniversary of the birth of Richard Doll, MD, who led many of the early studies proving the dangers of smoking. Pirie and most of her co-authors work in the Richard Doll Building at the University of Oxford.

Changing Times, New Research

Although Doll's research clearly documented the early mortality suffered by smokers, it was conducted at a time when most longtime smokers were men. Smoking among young women did not peak until the 1960s. Thus, the mortality risks faced by women smokers have appeared to be lower in the available data.

That is now set to change with the Million Women Study results, according to Sandra Adams, MD, of the University of Texas Health Science Center in San Antonio.

"We knew this about men," she told *MedPage Today*. "We knew that, as people age and they continue to smoke, they have a lot of smoking-related diseases, and the earlier that they stop the better. But what this demonstrates is that the smoking-related deaths have been markedly underestimated in women."
In an accompanying editorial in *The Lancet*, Rachel R. Huxley, PhD, of the University of Minnesota in Minneapolis, and Mark Woodward, MD, of the University of Sydney in Australia, also applauded the study.
"Aside from its impressive sample size, the Million Women Study is distinct from previous large cohorts -- and superior for assessment among women of the full eventual hazards of prolonged smoking and the full benefits of long-term cessation -- because the participants were among the first generation of women in the U.K. in which smoking was widespread in early adult life, and although many continued smoking, many stopped before age 30 or 40 years," they wrote.

They also noted estimates that some eight million tobacco-caused deaths will occur annually by 2030.

"Such estimates rely on hazard ratios from previous large cohort studies. Although most of the projected deaths are male, these new results suggest that the projected burden of smoking-related disease in women might need to be revised upwards," Huxley and Woodward suggested.

More Than a Million Women

The Million Women Study was actually larger than that, with a total of more than 1.3 million originally enrolled from 1996 to 2001. The present analysis excluded about 100,000 with previous disease. Included were about 620,000 never-smokers at recruitment, 329,000 who had quit at some point in the past, and 232,000 who reported current smoking.

Participants completed questionnaires on current and past smoking at recruitment and again 3 years and 8 years later. Some 23% of current smokers at enrollment said they had since quit in the second survey. At the 8-year follow-up, a total of 44% of the original group of current smokers indicated they had quit.

Data on subsequent mortality, including causes recorded on death certificates, were taken from Great Britain's comprehensive registry.

The median birth year in the cohort was 1943 (interquartile range 1938 to 1946), putting the participants squarely in the female demographic that had the highest smoking rates. Mean age at enrollment was 55.

During follow-up, some 66,000 participants died (6% of the total).

Pirie and colleagues found that 12-year mortality rates among those reporting current smoking at the 3-year follow-up were roughly triple those of never-smokers, "largely irrespective of age," they reported (rate ratio 2.97, 95% CI 2.88 to 3.07).

Light smokers (fewer than 10 cigarettes per day) were at substantially increased risk of death relative to never-smokers (12-year mortality RR 1.98, 95% CI 1.91 to 2.04).

The results also confirmed that, of the 30 most common causes of death in the U.K., 23 were significantly greater in current smokers. The rate ratio for chronic lung diseases was a whopping 35.3 (95% CI 29.2 to 42.5), and for lung cancer it was 21.4 (95% CI 19.7 to 23.2).

Other causes of death more common in smokers than nonsmokers were as varied as pancreatic cancer, motor neuron disease, and accidental or intentional injuries.

Dramatic Mortality Numbers

But perhaps the most dramatic findings were on mortality risks in former smokers. Pirie and colleagues stratified the results according to the age at which ex-smokers reported having quit (younger than 25, 25 to 34, 35 to 44, and 45 to 54).

For participants who stopped smoking by their mid-30s, the risk of all-cause mortality was hardly different from that of never-smokers (RR 1.05, 95% CI 1.00 to 1.11). Those quitting at 35 to 44 were at 20% greater risk of death than never-smokers, and those quitting at 45 to 54 were at 56% increased risk.

Lung cancer risk was significantly increased in ex-smokers regardless of the age at quitting -- with relative risks of 1.56 in those stopping before age 25 to 5.91 in participants quitting at 45 to 54, all with minuscule *P* values -- but still vastly lower than the relative risk of greater than 20 in those still smoking.

"Stopping well before age 40 years would avoid well over 90% of the excess hazard in continuing smokers," Pirie and colleagues wrote.

But, they stressed, "this does not ... mean that it is safe to smoke until age 40 years and then stop."

The 20% excess mortality risk in early quitters is still substantial, they argued, "causing one in six of the deaths among these ex-smokers."

They also noted that their results reflected adjustments for age, socioeconomic status, drinking habits, physical activity levels, oral contraceptive use, menopausal status, and use of menopausal hormone therapy, all as reported by participants. Except as reflected in these variables, however, exposures to disease-causing agents other than tobacco smoke were not tracked.

In their commentary, Huxley and Woodward said the results point up "the need for effective sex-specific and culturally specific tobacco control policies that encourage adults who already smoke to quit and discourage children and young adults from starting to smoke."

Adams agreed, telling *MedPage Today* that, with the dangers of cigarette smoking now thoroughly proven in women as well as men, the major research need now is to identify such policies and interventions.

But she added that cigarette smoking is not the only tobacco-related hazard, and that it would be helpful to have better data on health effects of other tobacco products.

These include hookah (also known as shisha), smokeless tobacco, and so-called electronic cigarettes that deliver nicotine vapor along with a variety of flavorings and other chemicals, some of which are known to be hazardous in other settings.

The study was funded by Cancer Research UK and the Medical Research Council.

All study authors and Huxley and Woodward declared they had no relevant financial interests

Primary source: Lancet; Source reference:
Pirie K, et al "The 21st century hazards of smoking and benefits of stopping: a prospective study of one million women in the UK" *Lancet* 2012; DOI: 10.1016/S0140-6736(12)61720-6.

Questions for you to answer:

1. [the SD of the birth year]
    a. If you can, calculate the SD of the birth year of the cohort.
    b. If you cannot, explain why not.
    c. If you cannot calculate the SD, give a good estimate for the SD and explain why your estimate is a good one.
2. After reading Chapter 1 in your textbook, how valid do you think this study is? Explain in detail and give your reasons.
3. The study was done on women from the U.K. Do you think it applies to women in other countries? Why or why not?
4. Why were the original studies by Dr. Richard Doll unable to correctly quantify the risk of smoking among women?
5. According to the article, what new information has the study produced?
6. What specific data supports the quote from the researchers, "this does not ... mean that it is safe to smoke until age 40 years and then stop."?