The Weight of Disease

Tobacco will soon be displaced as the main cause of cancer deaths in the United States. This might be reason for celebration, if smoking was not being supplanted by yet another preventable cause of cancer: obesity and its sidekicks — unhealthy food and lack of exercise. About a third of the estimated 1.6 million new cases of cancer last year stemmed from tobacco use, but another third were linked to obesity, inactivity and poor diet.

“So we know how to prevent about two-thirds of the current cancer burden in the United States,” Susan T. Mayne, PhD said, head of the division of Chronic Disease Epidemiology and Associate Director for Population Sciences at Yale Cancer Center, whose research has traced the role of diet in several forms of cancers. “Exercise, fruits, vegetables, whole grains: that’s the same message we’ve been giving our population for a long time. But it’s not changing behavior — the prevalence of obesity keeps going up.”

Indeed, the nation’s collective waistline has been steadily expanding for several decades, though recent research has found that the rate may be leveling off. At the moment, one in every three U.S. adults is obese, and another third are overweight. If projections hold, 78 percent of Americans will be overweight by 2020.

Yale researchers have demonstrated that the links between cancer and obesity can be broken, or at least weakened, through interventions and individual willpower. Cancer risk can be drastically cut by reducing one’s waistline. A growing number of publications have documented that link but also found troubling proof that the foundations of endometrial cancer may form as early as a woman’s 20s.

Until this research, this form of cancer was assumed to be caused by postmenopausal changes in a woman’s body. Now Herbert Yu, MD, MSc, PhD, a member of the Yale Cancer Center Cancer Prevention and Control Research Program, and several collaborators have found compelling evidence that correlates the risk of developing endometrial cancer with weight long before menopause begins.

“We found a cumulative effect from the age of 20 or 30,” Dr. Yu said. “If young women become obese and maintain obesity, they have a much higher risk of developing the cancer than do women who become overweight in their 40s or 50s. And the longer you are obese, the higher your risk.”

The increased risk is not trivial. Overweight women are twice as likely to develop endometrial cancer as women of normal weight. For obese women, the risk is four times greater. The study also found that overweight women tend to develop the disease at a younger age.

These findings, funded by the National Cancer Institute (NCI), held true across all racial and demographic categories among the 1,333 women studied. The genetic analysis of the data is still under way.

“But unfortunately,” explained Dr. Yu, “based on preliminary data, there are no strong linkages to genetic factors for endometrial cancer.”

Unfortunately because that makes a genetically engineered remedy unlikely.

“It seems that environmental factors, especially lifestyle, contribute significantly to the disease,” Dr. Yu said. “But that could be good, because lifestyle can be modified by diet and exercise.”

Dr. Yu also reported another troubling finding: “The sample size is very small for those who went from being obese to being normal weight,” he said. “But those who went from normal weight to overweight or obese are a huge number. It seems that once you’re obese or overweight, it’s very hard to reverse it.”

Exercise remedies

Melinda L. Irwin, PhD, MPH, Associate Professor in the division of Chronic Disease Epidemiology and Co-leader of the Cancer Prevention and Control Research Program, has shown that exercise and weight loss not only help to lower the risk of cancer, they also can greatly improve a patient’s recovery and survival chances.

Indeed, the numbers are startling. In a 2008 study of 933 women with breast cancer, Dr. Irwin found that women who began exercising moderately after diagnosis lowered their risk of death from cancer by 45 percent compared to their inactive peers. Breast cancer patients who reduced their physical activity were four times more likely to die of the disease. Irwin also learned that obese women tend to have high levels of insulin and insulin-like growth factors, which encourage cells to proliferate, leading...