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Low testosterone levels associated with increased risk of death in men

Men who have a low testosterone level after age 40 may have a higher risk of death over a four-year period than those with normal levels of the hormone, according to a report in the August 14/28 issue of Archives of Internal Medicine, one of the JAMA/Archives journals.

Unlike women undergoing menopause, middle-aged men generally do not experience a dramatic decrease in the production of sex hormones, according to background information in the article. Testosterone levels gradually decline as a man ages, decreasing approximately 1.5 percent per year after age 30. The effects of low testosterone levels include decreased muscle mass and bone density, insulin resistance, decreased sex drive, less energy, irritability and feelings of depression.

Molly M. Shores, M.D., and colleagues at the VA Puget Sound Health Care System and University of Washington, Seattle, studied the relationship between hormone levels and death in a total of 858 male veterans older than age 40 years. All participants received care in the VA Puget Sound Health Care System and had their testosterone levels checked at least twice between 1994 and 1999, with at least one week and no more than two years elapsing between tests. The men were followed for an average of 4.3 years and a maximum of eight years, through 2002.

About 19 percent (166) of the men had a low testosterone level; 28 percent (240) had an equivocal testosterone level, meaning that their tests revealed an equal number of low and normal levels; and 53 percent (452) had normal testosterone levels. One-fifth (20.1 percent) of the men with normal testosterone levels died during the course of the study, compared with 24.6 percent of men with equivocal levels and 34.9 percent of those with low levels. Men with low testosterone levels had an 88 percent increase in risk of death compared with those who had normal levels. When the researchers considered other variables that may influence risk of death, such as age, other illnesses and body mass index, the association between low testosterone levels and death persisted.

Previous studies have found that testosterone levels may dramatically decrease one to two days after surgery, trauma or critical illness--all factors that can increase the risk of death. To eliminate these effects, the authors reanalyzed the data excluding men who had died within the first year of follow-up. Men with low testosterone levels were still 68 percent more likely to have died. "The persistence of elevated mortality risk after excluding early deaths suggests that the association between low testosterone and mortality is not simply due to acute illness," they write. "Large prospective studies are needed to clarify the association between low testosterone levels and mortality." (Arch Intern Med. 2006;166:1660-1665. Available pre-embargo to the media at www.jamamedia.org.)

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