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BLADDER CANCER

Urinary tract infection increases risk

Data from the Nijmegen Bladder Cancer Study—one of the largest case-control studies for cancer of the urinary bladder worldwide—have been used to investigate the association between recurrent urinary tract infection (UTI) and the development of bladder cancer.

Previous epidemiological studies have reported a correlation between the risk of bladder cancer and the incidence of UTI; however, these investigations have usually been conducted in small study populations, comparing the risk of cancer in patients who have had a UTI with the risk in participants who have not.

> “...antibiotic treatment for UTI has a protective effect against bladder cancer”

Vermeulen and colleagues analysed information from 1,809 patients with bladder cancer and 4,370 control participants. They evaluated the risk of developing bladder cancer in patients who had experienced regular cystitis (low-UTI) and the effect of receiving antibiotics for UTI (UTI-ab) on this risk.

Increased risk of bladder cancer was found to be positively associated with recurrent low-UTI in men (adjusted odds ratio [OR] 6.6) and women (OR 2.7). However, a history of UTI-ab correlated with a decreased risk of bladder cancer in men and women (OR 0.76 and 0.64, respectively). When UTI-ab was stratified by frequency, the protective effect of antibiotic-treated UTI against bladder cancer was observed for up to five episodes of infection.

Further stratification revealed that the decreased risk of bladder cancer for patients experiencing ≤5 UTI-ab episodes was specifically associated with smoking status and age at infection—the protective effect of antibiotics was observed in those who were, or had been, smokers, and also in patients who first experienced UTI at an age below that of the median age of the study population.

Large differences in the risks of bladder cancer after UTI-ab were observed between premenopausal and postmenopausal women. Limited UTI-ab was protective in women ≤51 years; however, risk of bladder cancer greatly increased in women >51 years, irrespective of the number of UTI-ab episodes.

For men, more than 10 episodes of UTI-ab corresponded to an increased risk of urinary bladder cancer (OR 6.0), but the numbers of participants in both the patient and control groups of this stratum were low.

The risk of developing muscle-invasive bladder cancer was greater than that of non-muscle-invasive bladder cancer for multiple episodes of both low-UTI and UTI-ab, which has also been seen in previous studies investigating the association between UTI and bladder cancer.

Currently, controversy exists over whether recurrent UTI is involved in the aetiology of urinary bladder cancer. This investigation demonstrates that regular incidences of low-UTI are positively associated with bladder cancer; however, it also shows that, for a limited number of incidences, antibiotic treatment for UTI has a protective effect against bladder cancer.

The authors conclude that total number of UTI episodes, age at onset, use of antibiotics and the location of the infection in the urinary tract are important factors when considering the association of UTI with bladder cancer.

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