Human papilloma virus is not detectable in samples of urothelial bladder cancer in a central European population: a prospective translational study.

Abstract:
Previous investigations on the association of human papillomavirus (HPV) and human bladder cancer have led to conflicting results. The aim of this study was to determine if low and high risk HPV play a role in the etiology of superficial low grade and invasive high grade urothelial carcinoma of the bladder. We prospectively collected tumor samples of urothelial carcinoma of the bladder from 109 patients treated with transurethral resection or cystectomy, with bladder tissue from transurethral resection of the prostate serving as control. Unfixed, frozen tumor samples were analyzed for the presence of 14 high risk HPV types using real time PCR. Additionally, all specimens were tested for 35 low risk HPV types with a conventional PCR using degenerate primers located in the L1 region. Six frozen samples of cervical carcinoma served as positive controls. We included 109 cases of bladder cancer with 41 superficial (pTa low grade) tumors, 56 invasive (pT1-T4) high grade tumors and 12 others (pTa high grade + pTis). We have not detected HPV-DNA in any sample (95 % Confidence Interval [CI] 0-3.3 %), superficial tumors (95 % CI 0-6.4 %).
or in invasive tumors (95 % CI 0-8.6 %) with correct positive controls. Using a broad, sensitive assay with prospectively collected specimens of a Central European population we could not detect HPV-DNA in any of the cases. Our results suggest that it is unlikely that HPV infections play a major role in the development of urothelial bladder cancer.