

# Research warns that human papillomavirus might cause bladder cancer

September 25 2007

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The Human Papillomavirus (HPV) is considered the cause of one of the most important sexually transmitted diseases nowadays, and affects both men and women. HPV is so common in our society that only people who have never had sexual relations can be sure that they have not been exposed to this disease. However, as with other microbes, people infected do not necessarily develop the disease, because, in most cases, it only means the colonization. Only some of the people colonized will fall ill with different processes.

Nevertheless, the development of this disease might have serious consequences: It is probable that HPV is related to bladder cancer, according to a recent study carried out by the Department of Microbiology Departamento de Microbiología of the University of Granada, in collaboration with the Department of Biostatistics and the Urology Service of San Cecilio Hospital.

Several previous studies point out the possibility that HPV might cause, in certain subjects, some types of cancer: cervical, anus, vulva, penis, oropharyngeal (the middle part of the throat behind the mouth including the back of the tongue, the soft palate, the side and back walls of the throat) and bladder cancer. The researchers from Granada have focused their study on bladder cancer and have found some evidence of the relationship between both diseases. Nevertheless, they warn that further research on this matter is needed, particularly in order rule out the assumption that this infection is only a viral colonization and does not cause cancer (that is to say, the tumor appeared before the tissue was

infected by the virus).

Jose Gutiérrez Fernández, lecturer responsible for this study explains that, in order to draw this preliminary conclusion, 44 articles related to this matter written by experts from all around the world were analysed. “Our work consisted in a bibliographic review of the observational case studies published up to July 2005, in order to establish the degree of relationship found between bladder cancer and HPV infection”.

## **Standardization of methods**

The study carried out at the UGR points out that the relationship between these two diseases depends on the method used: these scientists found different results depending on whether the research was based on the person's DNA or not. “Of the 44 studies reviewed, in 39 the presence of DNA was studied. In the other 7 studies the HPV infection was studied through antigen or antibody detection”.

The great majority of these studies use PCR (Polymerase Chain Reaction) for the analysis. With this technique it is possible to duplicate as many times as desired a fragment of DNA in a test tube, and millions of identical molecules can be created from a single DNA molecule.

The relationship between HPV and bladder cancer might be due to the fact that the microorganism which generates the infection has DNA. Therefore, it acts directly on the cell nucleus and makes the cell cancerous. Moreover, the infection spreads quickly when healthy mucus comes into contact with infected mucus.

The research performed by the UGR points out that there might be a relationship between Human Papillomavirus infection and the appearance of the tumor. However, Gutiérrez Fernández warns that “in order to draw a final conclusion, it is necessary to carry out a study with

a sufficient number of cases and samples in which a combination of several microbiological techniques is applied to the same subject and sample”.

Source: Universidad de Granada

Citation: Research warns that human papillomavirus might cause bladder cancer (2007, September 25) retrieved 8 May 2024 from <https://medicalxpress.com/news/2007-09-human-papillomavirus-bladder-cancer.html>

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