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Virus linked with prostate cancer

New microarray technology has linked a previously unknown virus to prostate cancer, although the exact relation between the virus and prostate cancer is not yet clear.

The virus, tentatively named XMRV, is similar to leukaemia viruses that infect mice, but seems to infect only human beings. The lack of studies in animals will complicate efforts to determine the virus' precise role in prostate cancer, says Eric Klein, (Cleveland Clinic, Cleveland, OH, USA) who reported the study at the American Society for Clinical Oncology Prostate Cancer Symposium (San Francisco, CA, USA; Feb 24–26, 2006).

"Identifying the agent does not imply you have identified causality", cautions Joseph DeRisi (University of California, San Francisco, CA, USA). "Proving causality could take many

more years." DeRisi and colleagues created the virus chip used in the study. The same microarray was used to identify a new coronavirus that causes severe acute respiratory syndrome. Furthermore, the chip is a tool that can be used to investigate any disease of unknown aetiology, especially when the epidemiology of a disease suggests infection is a factor, says DeRisi.

Virus was seen in tissues from patients with prostate cancer who were homozygous for a single nucleotide polymorphism, known as R462Q, which codes for a variant, malfunctioning form of RNase L. These men are at substantially increased risk of prostate cancer. According to Klein, about 15% of the population have this variant. It is associated with about 13% of prostate cancer, he adds, making it the most common gene variant linked

to any human cancer. The wildtype enzyme degrades single-stranded RNA in response to interferon or viral infection, preventing propagation of viruses once they have infected the cell, and triggering apoptosis in the host cell.

The chip contains several thousand conserved sequences from every virus known to infect plants, animals, and humans—a total of nearly 1000 viruses. Researchers use these sequences as probes to uncover previously unknown viruses in tissues.

The researchers are also attempting to identify other viruses in cancers—particularly those that occur in patients with compromised immune systems. These include AIDS-related lymphomas and skin cancers associated with solid-organ transplantation.

Tabitha M Powledge

Sentinel-node mapping for staging of colorectal cancer

Use of sentinel-node mapping to stage colorectal cancer can lead to increased detection of nodal metastases and lower recurrence compared with conventional procedures, according to new findings (*Am J Surg* 2006; **191**: 305–10).

Lymph-node status is one of the most important prognostic factors used to determine treatment after a diagnosis of colorectal cancer. Patients with nodal disease are given adjuvant chemotherapy because of evidence of potential mortality reductions of 33% with such treatment; but there is no definitive evidence for survival benefit with adjuvant chemotherapy in patients who are node-negative.

Because conventional pathology understages 15–20% of patients with colorectal cancer, sentinel-lymph-node mapping was developed to identify nodes most likely to harbour metastases. "It would be cost prohibitive to perform such ultrastaging methods on all nodes harvested during conventional surgery",

says Sukamal Saha (Michigan State University, MI, USA).

Saha and co-workers compared outcomes of 500 consecutive patients who underwent sentinel-lymph-node mapping with 368 consecutive patients who underwent conventional surgery and pathological assessment.

Nodal positivity was 48% for the group assigned sentinel-lymph-node mapping, compared with 35% for the group assigned conventional staging ($p < 0.001$). After a minimum of 2 years' follow-up, patients assigned nodal mapping ($n = 153$) had an overall recurrence of 7%, compared with 25% for the 162 patients assigned conventional staging ($p = 0.001$).

Sentinel-node biopsy in colorectal cancer is controversial—studies have found identification rates of 77–99%, resulting in a false-negative rate of 3–60%. "The difference in [this] study was that surgeons had [done] many more procedures. The volume of dye



Sentinel-node mapping: the route to increased identification of nodal metastasis

they injected was according to the diameter of the tumour as opposed to a fixed volume [as] in other studies", says Markus Zuber (University of Basel, Switzerland). He adds that sentinel-node biopsy should be regarded as an investigational procedure until a randomised study is done.

Janet Fricker