

**Read all about it...** It can be awkward when a patient asks you about a report in their favourite tabloid detailing an amazing research breakthrough or a 'cutting-edge' new treatment / test and you don't know what they are talking about! So this section fills you in on the facts.

## E-cigarettes are NOT harmless – chemicals in vaping trigger bladder cancer, study reveals

MailOnline – 17 May 2017

This story was published, in some form, by most news outlets. The media picked up on a podium presentation at the American Urological Association meeting in Boston, given by Dr Sam Chang of Vanderbilt-Ingram Cancer Center in Nashville. Clearly, it is well known that smoking tobacco is associated with urothelial cancer, but it is thought that e-cigarettes (or 'vaping') are nowhere near as harmful and are a useful quitting tool.

Dr Chang's team looked at a cohort of 13 'vapers' and examined their urine for the presence of five different carcinogenic compounds. Ninety-two percent of the e-cigarette users tested positive for o-toluidine and 2-naphthylamine. This then gave rise to the headlines. However, crucially, there was no verification that these compounds originated from the e-cigarette vapour or that the cohort had definitely stopped smoking. Further research by the team indicated

that nicotine from e-cigarettes could potentially be 'nitrosatised' in urothelial cells as it is excreted in the urine and converted to nitrosamines and formaldehyde which cause DNA damage. Nicotine derived nitrosamines are well known to cause DNA damage that can trigger cancer and these compounds occur in tobacco smoke. In vivo or endogenous production of the nitrosamines from pure nicotine may not even be possible though, a good study from Hecht et al. previously indicated that nitrosamine production from 'vaped' nicotine was practically non-existent.

The truth is, nobody truly knows what the long-term health implications of 'vaping' are at this point in time. However, whilst nobody can claim it to be completely safe it is clearly far better than smoking tobacco and it would be a shame if research such as this put people off a way to quit tobacco.

## Moggie Mite-Mare! Parasite found in cats is linked to prostate cancer in men as experts reveal common bug can be spread by handling litter trays

The Sun – 21 May 2017

This research from Indiana, USA implicates the intracellular, parasitic alveolate *Toxoplasma gondii* as a cause of prostatic inflammation. Around a third of the UK population are believed to have been exposed to *Toxoplasma gondii*, which can be found in animal stool or unwashed vegetables or contaminated water. The research team in Indiana infected mice with *Toxoplasma* and then examined their prostates. They found that the prostate became actively infected within 14 days and this led to the development of parasitic cysts that persisted for 60 days with associated leukocyte infiltration and reactive hyperplasia.

However, there are a number of

issues with what the media headlines are suggesting. Firstly, we do not know if the same occurs in humans. Secondly, an actual infection (*Toxoplasmosis*) is very different to simply having been exposed and developing antibodies, indeed, a true infection in humans is rare. Thirdly, whilst chronic inflammation is linked to prostate cancer, this study indicated transient inflammation and the researchers themselves did not make any link to prostate cancer in men. Nevertheless, I find this research interesting as at least some chronic prostatitis / pelvic pain is linked to non-bacterial infections and this difficult condition would benefit from more research.

## Bladder cancer cure: THIS unusual drug ingredient STOPS tumours growing

The Express – 25 April 2017

This story concerns research published in *European Urology* by a team based in British Columbia. As we know, systemic chemotherapy for muscle invasive bladder cancer (MIBC) is cisplatin based, however 60% of patients do not respond to treatment. There is sadly little to offer patients who are unlucky enough to find themselves in need of an alternative to cisplatin and therefore any development in this field will be welcome news. The research team in Canada have been investigating the possibility of targeting cancer-specific oncofetal chondroitin sulfate A (ofCSA) chains in MIBC. The research team had previously identified that ofCSA plays a key role in cancer cell interaction with the extracellular matrix and therefore a key role in cell migration and invasion.

The research team have successfully bound ofCSA in cancer cell lines using a recombinant VAR2CSA protein, which is derived from the *Plasmodium falciparum* malaria parasite. In patients, 64% of cisplatin resistant cancers significantly over-express ofCSA and so the finding that the VAR2CSA protein inhibited growth of the cancer cells is very promising indeed. This is still a long way from even a Phase I trial but this is a very encouraging development and is all the more appealing for the ingenuity of using something pathogenic to our advantage.



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