Diabetes treatment doubles skin cancer drug's effectiveness

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Combining the experimental drug Avastin (bevacizumab) with the diabetes drug Metformin almost doubles its ability to reduce skin cancer growth, according to a study in *Cancer Discovery*.

The researchers - funded by Cancer Research UK, the AICR and based at The Institute of Cancer Research (ICR) - found that treating aggressive skin cancer in mice with just Avastin suppressed tumour growth by 34 per cent.

But, when combined with Metformin, tumour growth was reduced by 64 per cent.

Professor Richard Marais, lead researcher and director of Cancer Research UK's Paterson Institute at the University of Manchester, said: "Our results are surprising because combining Metformin with drugs such as Avastin has a much greater effect in suppressing tumour growth than would be expected when looking at the effect of either drug on its own. If we can now show this effect holds true in patients, it could help overcome the resistance we often see in skin cancer patients."

Intriguingly, melanoma cells - the most aggressive form of skin cancer - treated with just Metformin grew more quickly.

Metformin caused melanoma cells with a BRAF mutation form new blood vessels and accelerate tumour growth.

BRAF mutations are found in around 70 per cent of all melanomas. Professor Marais and colleagues, with support from Cancer Research UK, were the first to discover their role in causing the disease.

Professor Marais added: "Recent research has shown that the common diabetes drug metformin has anticancer properties. But we need to understand the effect it's having on BRAF melanomas and whether prescribing metformin by itself could potentially worsen the disease."

Each year around 11,800 people are diagnosed with melanoma in the UK. Over the last 25 years, rates of malignant melanoma have risen faster than any of the most common cancers.

Professor Nic Jones, Cancer Research UK's chief scientist, said: "This research points the way to a potentially very effective drug combination to treat the most aggressive form of skin cancer. We now need to see if this combination benefits patients in clinical trials with the hope of making new treatments for skin cancer even more effective.

"Professor Marais' team, funded through the public's generous support of Cancer Research UK, are making great strides in turning their discoveries in BRAF into new treatments that could make a real difference for patients with melanoma."

More information: Martin, M.J. et al. Metformin accelerates the growth of BRAFV600E- driven melanoma by upregulating VEGF-A *Cancer Discovery* (2012) DOI: 10.1158/2159-8290.CD-11-0280
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