

An improved method for calculating tumor growth

March 8 2010

When treating cancer, it is an advantage to know the rate of growth of the cancer tumour. The standard method currently used to determine tumour growth, however, is erroneous. This is the conclusion of scientists at the University of Gothenburg, Sweden, who have developed a new model.

The principal reason that patients die of [cancer](#) is the spread of [cancer cells](#) through the body to form new tumours known as [metastases](#). These metastases are initially so small that they cannot be detected by modern diagnostic methods. The healthcare system must therefore, when treatment begins, rely on mathematical models to calculate the growth of a tumour.

The standard method for describing tumour growth uses a parameter known as "doubling time" (DT), which specifies the time it takes for a tumour to double in volume. Scientists at the University of Gothenburg have now shown that this widely applied calculation method is erroneous.

Scientist Esmaeil Mehrara and his colleagues at the Department of Radiation Physics, University of Gothenburg, have developed a new method that calculates the rate of tumour growth more accurately. The new method uses a parameter known as the specific growth rate (SGR), which measures the percentage growth of the tumour per day.

The new method improves the possibility of determining the effects of

various treatment alternatives.

"The standard method used to determine the effect of therapy does not take the rate of tumour growth into account, while our new model does. This means that we can measure more accurately even small effects of treatment", says Esmaeil Mehrara.

It is hoped that the new method using SGR will be valuable in determining whether a treatment is having an effect or not in a particular patient. This means that the best treatment for a patient can be found more rapidly than is the case today.

Provided by University of Gothenburg

Citation: An improved method for calculating tumor growth (2010, March 8) retrieved 5 May 2024 from <https://medicalxpress.com/news/2010-03-method-tumor-growth.html>

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