Medical Xpress

Study: 7 key genes predict brain cancer survival

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(AP) -- Scientists have found seven key genes in the type of brain tumor affecting Sen. Edward Kennedy that together can predict how aggressive a patient's cancer will be.

The findings, appearing in Wednesday's Journal of the American Medical Association, may eventually lead to tests that predict patient survival and drugs that target the culprit genes.

While hundreds of gene mutations may contribute to brain cancers, the researchers decided to search for the problem genes at the center of the interplay driving a tumor's growth.

The study's lead author likened those genes to organized crime bosses.

"You want to find the strategy to knock down the Mafia," said Dr. Markus Bredel of Northwestern University's Feinberg School of Medicine, who led the research. "So you probably want to get the big bosses."

The researchers looked at the gene profiles of brain tumor samples from more than 500 cancer patients. Most of the patients had high-grade gliomas and some had glioblastomas, the deadliest type of brain cancer believed to be afflicting Kennedy, who disclosed his illness in May of last year.

The researchers examined the interactions among genes. They found 11

"hub" genes and dozens of "hub-interacting" genes intricately connected to one another by biological functions.

The status of seven of those genes predicted the patients' survival when the researchers looked at glioblastoma samples from The Cancer Genome Atlas project, a government-funded effort that's building on the mapping of the human genome.

A risk prediction could be calculated for a patient from a sample of tumor, Bredel said, adding that the science of estimating risk isn't exact.

The new work adds to other recent research identifying genes and gene pathways important to glioblastomas, said Dr. Boris Pasche of University of Alabama at Birmingham, who wrote an accompanying editorial in the journal.

The new model helps explain which damaged genes are important and which are mere bystanders, he said.

"I am quite optimistic that if we find the Achilles heel of this tumor, and there may be more than one, and if we can target them, we may see significant improvement in survival," Pasche said.

On the Net:

JAMA: http://www.jama.ama-assn.org

The Cancer Genome Atlas: http://cancergenome.nih.gov