MedicalXpress

Study offers ethical and cost-effective strategy for managing MRI incidental findings

June 17 2010

The increasing number of incidental findings in brain imaging can be managed ethically and cost-effectively by screening study participants based on gender, age and family history, according to University of British Columbia researchers.

Incidental findings are anomalies discovered unexpectedly during research that utilizes brain imaging techniques such as functional magnetic resonance imaging (fMRI) of the brain.

The UBC study, published online today the journal *Value in Health*, is the first economic analysis of current incidental finding management practices. More than 1,800 fMRI studies were published between 2002 and 2008. Incidental findings that require clinical follow-up are detected in two to three percent of healthy participants in these studies. At an average of 10 participants per study, that is two to three percent of 18,000 volunteers.

Currently, protocols for handling incidental findings vary widely across institutions, ranging from costly, full clinical-grade imaging for all study participants before enrolment to "don't look, don't tell," where brain images aren't screened for anomalies.

"The lack of consensus in incidental finding protocols creates both ethical and financial challenges for researchers and the health care

system," says UBC Neurology Prof. Judy Illes, co-author of the study.

"By examining this issue from a health economics viewpoint for the first time, we show that a strategy tailored to the health characteristics of research participants can safeguard the welfare of study participants while saving cost to the health care system," says Illes, who's also director of the National Core for Neuroethics at UBC.

The researchers applied health economics modeling to intracranial aneurysm, a potentially fatal brain disorder if left untreated. They found that it is cost-effective to perform a full radiological exam before enrolling women with a family history of aneurysm in a brain imaging study. Men with no such family history have a lower risk of developing aneurysm and thus the cost of performing full neurologic scans prior to enrolling in a study is not justified.

Meanwhile, the common practice of pre-screening brain scans by students and other individuals who have not been trained in brain imaging is not a cost-effective use of resources, regardless of participant profile, according to the study.

"Discussions around incidental findings have so far centred around the duty to inform and care," says co-author Mohsen Sadatsafavi, a PhD student in UBC's Faculty of Pharmaceutical Sciences.

"Our analysis looks at the issue from the cost-to-society perspective to define the optimal way to manage incidental findings. We've found that a universal approach simply isn't an optimal choice."

"With widespread growth in brain imaging research - an annual increase rate of 5.8 per cent for fMRI studies alone - and vast improvements in the precision of brain imaging techniques, more and more healthy individuals can expect to be confronted with incidental findings," says

Illes, who will lead similar research on other serious brain disorders.

"Better harmonization of protocols is the ethical and economically prudent way of advancing research and the health of our society."

Provided by University of British Columbia