VICTORIAN CENTRE FOR BIOSTATISTICS

ViCBiostat

Victorian Centre for Biostatistics

SEMINAR

Thursday 26th March 2015
9.30am to 10.30am
Alfred Hospital, Grnd floor, Classroom 1, AMREP (Education Centre)
99 Commercial Rd, Prahran

Cancer risks following diagnostic CT scans are not explained by reverse causation artefact

Professor John Mathews
Melbourne School of Population and Global Health
University of Melbourne

Rates of cancer are increased following low-dose radiation from computed tomography (CT) scans used for medical diagnosis. However, when the lag period between a CT scan and diagnosis of cancer is very short, it is likely that the cancer was not caused by the radiation, but rather that the CT scan was prompted by early symptoms of cancer (reverse causation) or by the need to investigate a precancerous condition (confounding by indication). We modelled the incidence of cancer following diagnostic CT scans in our cohort of almost 11 million young Australians. We find that reverse causation explains most cancers occurring at lags of less than 12 months, but explains very few at longer lags. The excess relative risk estimate for cancers apparently caused by CT scans is 0.056 per mSv, with 95% credibility intervals of 0.047-0.065, at lag periods as short as 2-3 years. Estimates from the Life Span Study (LSS) of atomic bomb survivors are much lower. We suggest that the average risk of cancer, per unit of dose, is greater at the lower doses from CT scans than at the higher average doses in the LSS.

Professor John Mathews is an epidemiologist with experience from Papua New Guinea, Oxford, Melbourne, Darwin and Canberra; he has advised governments on matters such as kuru, Agent Orange, ionising radiation, pandemic influenza, SARS, Aboriginal health, BSE and v-CJD, research policy, health services and data linkage. He was Foundation Director of the Menzies School of Health Research (1984-99), and senior adviser with the Australian Government (1999-2004). Since 2004, he has led a study linking de-identified Medicare records to define cancer risks following CT scans in childhood.

www.vicbiostat.org.au

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