PAEDIATRIC COMPUTED TOMOGRAPHY AND SUBSEQUENT CANCER: SETTING UP OF THE EUROPEAN PROJECT EPI-CT

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Background and Aims

The growing use of computed tomography (CT) scans for paediatric patients raises the question of a possible impact of ionising radiation exposure on leukaemia and other cancers. The European collaborative EPI-CT project aims to pool data from several national cohorts of children having undergone a CT examination.

Material and methods

Following recommendations of a pilot study (Child-Med-Rad) which demonstrated the feasibility of setting up an international cohort study of paediatric CT patients and developed a common protocol, the project EPI-CT was launched in February 2011. EPI-CT will build or extend national cohorts with the aim of performing pooled analyses. Children, exposed in nine European countries to CT scan, will be included both retrospectively and prospectively until 2013. About one million children (Belgium, Denmark, France, Germany, Netherlands, Norway, Spain, Sweden and the United Kingdom) will be recruited. Individual patient dose reconstruction will be performed using hybrid mathematical phantoms of children of various ages. Cross-linkage with national cancer registries will allow to calculate cancer incidence in the pooled cohort and to compare it to baseline rates. In parallel, the biological effect of CT-scan will be estimated on blood and saliva.

Results

The study methodology and details of the biological studies will be presented. Patterns of use of CT scanning in different countries and over time will be assessed. Analyses planned for the year 2015 will have sufficient statistical power to evaluate the risk between exposure to CT scans in childhood and the cancer risk, particularly leukaemia.

Conclusion

This project will provide, for the first time, direct epidemiological evidence on the potential cancer risk due to ionising radiation exposure from paediatric CT scans in a large multinational European cohort. Results will inform radiation protection and patient dose optimisation. This project is supported by the EU FP7 Euratom grant agreement n°269912.