Nuclear power and childhood leukaemia

Nuclear power is being suggested by some as a “green” alternative to burning fossil fuels. But are we really considering the full long-term health and safety ramifications of nuclear power stations? One major health concern is whether living near nuclear power stations increases the risk of childhood leukaemia.

Childhood leukaemia

Childhood leukaemia is a cancer of the white blood cells, which causes death unless treated. Many children with leukaemia can be cured with chemotherapy or bone marrow transplantation. However there are significant risks and long-term effects associated with both treatments.

Although what causes leukaemia is poorly understood, environmental exposure to radiation is a well-known risk factor.

Whether the generally low amount of additional radiation exposure received by children living near nuclear power stations increases their risk of childhood leukaemia has been controversial. This fact sheet reviews and summarises new scientific evidence on this topic.

Acute lymphoblastic leukaemic blood smear

New evidence

New studies reviewed overleaf have established beyond reasonable doubt that routine operation of nuclear power plants, even in technologically advanced countries, increases the risk of leukaemia for children living nearby.

A history of inconclusive results and controversy

The first reports of a possible association between living near nuclear power stations and an increased risk of childhood leukaemia came from a study describing a cluster of cases near the Sellafield nuclear site in England 1984. Other clusters were described near Aldermaston (England) and Dounreay in Scotland.

Since then, there have been many studies published in peer-reviewed scientific journals addressing the question of whether the data from these studies are applicable to nuclear reactors in general. However, findings from different studies have been inconclusive and the issue remained controversial. Whilst some studies found an association, others did not and the majority of studies were too small, or the increases in risk statistically insufficient, to draw definitive conclusions.

Reports by the UK Government’s Committee on the Medical Aspects of Radiation in the Environment (COMARE) dismissed radiation exposure as a cause of the leukaemia clusters because the levels of radiation involved were considered too low to explain an increase in leukaemia.
Conclusions

Although results from these new studies cannot provide conclusive proof that it is the ionising radiation produced by nuclear power stations which increases the risk of leukaemia for children living nearby, this does not alter the strength of the association. It has now been established beyond reasonable doubt that routine operation of nuclear power plants, even in technologically advanced countries, increases the risk of leukaemia for children living nearby.

These studies raise important questions regarding the wisdom of embracing nuclear power considering — among many other dangers — the health and safety risks involved.

References: