

Day care in infancy and risk of childhood acute lymphoblastic leukaemia: findings from UK case-control study

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C Gilham (statistician), J Peto (professor of epidemiology), J Simpson (research fellow), E Roman (professor of epidemiology), T O B Eden (professor of paediatric oncology), M F Greaves (professor of cell biology), F E Alexander (professor of statistics)

FROM ABSTRACT:

Objective

To test the hypothesis that reduced exposure to common infections in the first year of life increases the risk of developing acute lymphoblastic leukaemia.

Design and Setting

The United Kingdom childhood cancer study (UKCCS) is a large population based case-control study of childhood cancer across 10 regions of the UK.

Participants

6,305 children (aged 2-14 years) without cancer;
3,140 children with cancer (diagnosed 1991-6), of whom 1,286 had acute lymphoblastic leukaemia (ALL).

Main Outcome Measure

Day care and social activity during the first year of life were used as proxies for potential exposure to infection in infancy.

Results

Increasing levels of social activity were associated with consistent reductions in risk of ALL; a dose-response trend was seen.

Conclusion

These results support the hypothesis that reduced exposure to infection in the first few months of life increases the risk of developing acute lymphoblastic leukaemia.

THESE AUTHORS ALSO NOTE:

A 1988 study proposed that a deficit of exposure to infectious agents in infancy delays infectious challenge and subsequent immune system development which is responsible for the childhood peak of acute lymphoblastic leukaemia (ALL) at age 2-5 years.

Sending infants to day care creates social interactions with other children outside the home, increasing incidences of infections, which plays an important role in immune system development.

RESULTS

Children with some social activity with other children outside the family in the first year of life: "Any such activity was associated with a reduced risk of ALL."

Infants in formal day care without older siblings had a 39% reduction in ALL.

Infants in formal day care with older siblings had a 62% reduction in ALL.

"The greatest reduction in risk of ALL was seen in children who attended formal day care during the first three months of life." **[Very Important]**

DISCUSSION

This large, nationwide, population based investigation shows "that immunological isolation in infancy increases the risk of ALL."

"The overall results for ALL show a consistent and statistically significant reduction in risk for each level of social activity in the first year of life and a dose-response trend across increasing levels of activity."

Nine other case-control studies of childhood leukaemia have looked at social activity and day care and most other studies suggest a reduction in risk of around 30-40% for day care attendance or social activity.

Several other investigators have reported reduced risks of ALL in children with many infections.

POSSIBLE MECHANISMS

Immunological isolation in the first year of life provides "inadequate priming of the naïve immune system" and "may precipitate a highly dysregulated immune response."

"Children attending day care have an increased risk of contracting a variety of common infections," and "Children attending day care centers on a regular basis in the first few months of life are less likely to develop acute lymphoblastic leukaemia than are children who do not."

CONCLUSIONS:

"Our results provide further support that social activity with other infants and children during the first few months of life protects against subsequent risk of ALL."

“The most plausible interpretation is that this protection comes from exposure to common infections.”

“Similar associations have been reported for type 1 diabetes and allergies in children.”

These authors “conclude that some degree of early exposure to infection seems to be important for child health.” **[Very Important]**

“This study was conducted by 12 teams of investigators (10 clinical and epidemiological and two biological) based in university departments, research institutes, and the NHS in Scotland.”

PUBLISHED RESPONSES THAT FOLLOWED THIS ARTICLE INCLUDE:

“Striking the right balance between protecting our children from damaging or life threatening infections whilst exposing them to a ‘sufficient dose’ of milder infections to prime their immune systems, has far-reaching social and behavioural connotations.”

Roger C Parslow, Senior Research Fellow
Paediatric Epidemiology Group, University of Leeds

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[This was my favorite response, by a chiropractor, Dr. Richard Lanigan]

“Gilham et al’s findings should not come as a surprise, however they have stopped short of questioning the possible benefits to the immune system of what were once called ‘normal childhood infections’ and now, are extremely rare.”

“Prevention of infectious diseases is seen universally as beneficial to the health of society. However few have considered the possibility that natural selection and these diseases, played a role in the development of the immune system to fight more deadly diseases.”

Dr. Lanigan then cites references to support the following points:

- 1) Children who take fewer antibiotics and a lower rate of immunization also have a lower prevalence of asthma, eczema and hay fever than the controls.
- 2) Children who contract measles are less likely to develop asthma, a disease that was rare thirty years ago and now kills 2000 people per year in the UK.
- 3) DPT vaccination increases the risk of allergy.

- 4) There is a specific inverse relationship between contracting measles and atopic diseases.
- 5) Children who did not have DPT or polio immunization did not suffer from asthma or other allergic illnesses while 23 - 30% of the control group do.
- 6) A 1999 study showed that early infection may protect against allergies later in life.
- 7) Children who suffered infections in the first year of life are less likely to develop insulin dependent diabetes.
- 8) Immunized children have twice the incidence of type-1 diabetes.

"There is no doubt that the introduction of mass vaccination programmes in Cuba after the revolution reduced the incidence of death from measles and other childhood diseases, at a time when sanitation, nutrition and housing was poor. Cuba now has achieved life expectancy and infant mortality rates similar to developed countries. However, it also has a high prevalence of asthma similar to North America and Europe and other autoimmune disorders."

Richard Lanigan, Chiropractor

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"The study by Gilham et al. confirms the hypothesis that reduced exposure to infection early in life has effects on the maturing immune system that increase the risk of acute lymphoblastic leukaemia (ALL) and possibly other malignancies."

"The immunological basis of this increased risk is uncertain but it could be the result of the inadequate development of immune surveillance mechanisms that detect cancer-specific antigenic determinants."

"Gilham et al. postulate that the inadequate priming of the immune system due to a lack of exposure to infection permits subsequent infections by unknown exogenous agents, probably viruses, to cause immune dysregulation leading to ALL."

John M. Grange

Centre for Infectious Diseases and International Health, University College London.

Bernd Krone

Klaus F. Kölmel

Departments of Virology and Dermatology, University of Göttingen, Germany.

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"Before 1920, acute leukemia among children was a rare event. A significant peak-age incidence (2-5 years) appeared after 1940. Since then, the incidence rate of childhood leukemia has been more or less remarkably stable. This means that some leukemogenic factor must have been introduced in children's lives some time around 1940."

"It is a highly striking coincidence that at the same year the introduction of immunization against diphtheria was began on a national scale.

Petar I. Ivanovski, pediatrician
University Childrens Hospital, Belgrade

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Peter Ivanoski states, with concern, and references:

"Before 1920, acute leukemia among children was a rare event. A significant peak-age incidence (2-5 years) appeared after 1940. Since then, the incidence rate of childhood leukemia has been more or less remarkably stable. This means that some leukemogenic factor must have been introduced in children's lives some time around 1940."

"It is a highly striking coincidence that at the same year the introduction of immunization against diphtheria was began on a national scale."

"I wonder if our friends at the CDC, NIH, WHO etc. have considered adding leukemia in addition to diabetes, Guillian-Barre', Autism, SIDS, Arthritis, Thrombocytopenia, Encephalitis, Death, SBS, Distressed Breathing, Thimerosal Accumulation in Brain (TAB), delayed speech, tics, seizures, hallucinations, dizziness, Hemorrhagic Vasculomyelinopathy etc. etc. etc. to 'highly coincidental' adverse reactions from the long list of mass immunizations."

"Do you think parents would be informed during their child's well visit of any of the above?"

"In particular, MMR advice from WHO is to jab unless the child is in serious risk of dying. And the only reason given not to jab in this instance is that the death may "incorrectly" be attributed to the MMR. And we wonder why most all serious adverse vaccine reactions are attributed to 'coincidence'. As clearly seen in this WHO advice--take great lengths to disclaim any adverse vaccine reaction."

L. Travis Haws, Dentist
Lakewood CO 80228

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"I draw attention to a letter entitled 'Immunization and Childhood Leukaemia' in which it was shown that Leukaemia in children in Brisbane Children's Hospital from 1958 to 1964 showed a significant statistical association with immunization against diphtheria, tetanus and whooping cough."

In view of Dr Ivanovski's observations that the incidence of childhood leukaemia increased with the introduction of DPT vaccination it is virtually certain that, if investigated, they will find the group with Leukaemia also shows a statistically significant increase in immunization with DPT vaccine.

Michael Innis, Director Medisets International

KEY POINTS FROM DAN MURPHY

- 1) A number of studies going back nearly 2 decades propose that a deficit of exposure to infectious agents in infancy delays immune system development and is consequently responsible for the childhood peak of acute lymphoblastic leukaemia at age 2-5 years.
- 2) Sending infants to day care increases the incidences of infections, which plays an important role in immune system development, and reduces the incidence of acute lymphoblastic leukaemia.
- 3) In this study, infants in day care without older siblings had a 39% reduction in acute lymphoblastic leukaemia.
- 4) Infants in day care with older siblings had a 62% reduction in acute lymphoblastic leukaemia.
- 5) "The greatest reduction in risk of acute lymphoblastic leukaemia was seen in children who attended formal day care during the first three months of life." **[Very Important: this indicates that the first 3 months of life are a critical time for infants to actually get infections so that their immune system develops appropriately and strongly, which reduces the incidences of acute lymphoblastic leukaemia and other diseases]**
- 6) Not being infected ("immunological isolation") in infancy increases the risk of acute lymphoblastic leukaemia.
- 7) Nine other case-control studies of childhood leukaemia suggest a reduction in risk of around 30-40% for day care attendance and increased infections.
- 8) Not being infected ("immunological isolation") in the first year of life provides "inadequate priming of the naïve immune system" and "may precipitate a highly dysregulated immune response."

- 9) Increased infections in the first few months of life reduce chances of developing acute lymphoblastic leukaemia.
- 10) "The most plausible interpretation is that this protection comes from exposure to common infections." [This means that exposure to common infections is a good thing in terms of immune system development and reduced incidence of acute lymphoblastic leukaemia.]
- 11) Exposure to common childhood infections also reduces incidence of type-1 diabetes and allergies.
- 12) "Some degree of early exposure to infection seems to be important for child health." [**Very Important**]

KEY POINTS IN THE RESPONSES TO THIS ARTICLE INCLUDE:

- 1) The prevention of infectious diseases [with antibiotics and vaccinations] impairs the development of the immune system so that it is less capable of fighting more deadly diseases, including cancer.
- 2) Antibiotics and vaccination of children (especially DPT) increase asthma, eczema, hay fever, allergies, atopic disorders, insulin dependent diabetes.
- 3) Immunized children have twice the incidence of type-1 diabetes.
- 4) Mass immunizations have been linked to leukemia, diabetes, Guillian-Barre', Autism, SIDS, Arthritis, Thrombocytopenia, Encephalitis, Death, SBS, Distressed Breathing, Thimerosal Accumulation in Brain, delayed speech, tics, seizures, hallucinations, dizziness, Hemorrhagic Vasculomyelinopathy etc. etc. etc.
- 5) There is a significant statistical association with immunization against diphtheria, tetanus and whooping cough and acute lymphoblastic leukaemia.