Medical Xpress

New analysis finds daycare attendance early in life cuts childhood leukemia risk by 30 percent

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Children who attend day care or play groups have about a 30% lower risk of developing the most common type of childhood leukaemia than those who do not, according to a new analysis of studies investigating the link.

The new research, to be presented Tuesday at the 2nd CHILDREN with LEUKAEMIA Causes and Prevention of Childhood Leukaemia Conference in London, is the first comprehensive analysis of studies investigating the association between social contact and childhood leukaemia.

“Combining the results from these studies together provided us with more confidence that the protective effect is real. Analysing the evidence in this way gives a more reliable answer to the question and a more precise estimate of the magnitude of the effect,” said the study’s leader, Dr. Patricia Buffler, professor of epidemiology at the School of Public Health of the University of California, Berkeley.

While the analysis does not reveal how intense social contact might ward off childhood leukaemia, it bolsters the theory that children exposed to common infections early in life gain protection from the disease. It is known that environments such as day care centres increase the chance of infections spreading. Some proponents of the theory believe that if the immune system is not challenged early in life and does not develop

normally it may mount an inappropriate response to infections encountered later in childhood and that this could provoke the development of leukaemia.

Leukaemia is the most common cancer found in children in the industrialised world, affecting about one in 2,000 children. Incidence of the disease has been on the increase for decades. Acute lymphoblastic leukaemia, or ALL, the type of leukaemia the studies focused on, accounts for more than 80% of cases and most often occurs in children aged between 2 and 5 years. Scientists believe that for most types of childhood leukaemia to develop, there first must be a genetic mutation in the womb, followed by a second trigger during childhood that results in 1% of those children developing the disease. Infection – or the timing of infection - is one of the suspected triggers.

Buffler's analysis included 14 published studies comprising a total of 6,108 children with leukaemia and 13,704 without the disease. Parents were asked about day care and playgroup attendance, as well as other forms of social interaction with other children. The studies varied in the timing, duration and extent of social contact investigated and in the age groups and types of leukaemia studied. Twelve of the studies found some indication of a protective effect of social interaction with other children, while two found no effect. No study found that social contact increased the risk of childhood leukaemia.

"Our analysis concluded that children who attended day care or play groups had about a 30% lower risk of developing leukaemia than those who did not. Combined results for studies of day care attendance specifically before the age of 1 or 2 showed a similarly reduced risk," Buffler said.

The protective effect became even stronger when the researchers omitted from the analysis 5 studies in which the selection of healthy

children for the comparison group relied on methods not considered optimal. In that analysis, children exposed to social contact were almost 40% less likely to go on to develop leukaemia than their counterparts.

In a separate report released at the conference on Tuesday by CHILDREN with LEUKAEMIA, scientists reviewed the evidence from studies that have investigated a link between infection and childhood leukaemia. They examined not only the idea that early life infections protect against the disease but also whether vaccination plays a role. In addition, they examined two other related areas of research: the role of infection during pregnancy and whether infection might be a factor influencing childhood leukaemia risk in situations where the population mix changes.

The report concluded that the evidence regarding whether infection during pregnancy or in situations of unusual patterns of population mixing influences the risk is inconclusive at present and that further research is necessary.

“On the question of whether infection early in life protects against leukaemia, the best evidence comes from studies of indirect measures of infection - which eliminates many of the problems common in trying to study infections directly - as well as from studies on immune system stimulation and on the genetics of immune responses,” said one of the report’s authors, Dr. Adrienne Morgan, staff scientist at CHILDREN with LEUKAEMIA.

“Putting our review together with the new analysis on social interaction, we can say pretty confidently that childcare, breastfeeding and vaccination are good things. This gives a steer to the biologists looking for what mechanisms might be at play,” she said.

Source: Children With Leukaemia