

Childhood leukemia and population mixing

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Järvelä et al. [1] found little evidence during 1990–2011 of an effect of individual residential mobility on childhood leukemia risk in Finland, and concluded that their findings “do not support the population mixing hypothesis.” This hypothesis [2] postulates that childhood leukemia is a rare response to an as yet unidentified common (probably subclinical) infection, and that a marked influx into a remote rural area, by promoting contacts between susceptible and infected individuals, would be conducive to a “mini-epidemic” of the underlying infection and a consequent excess of cases of the rare response. Unless these population mixing conditions exist, it is unlikely that an effect will be found. As the authors acknowledge “in Finland overall, there has not been any major population influx or increased residential mobility during the study period” [1], so their study hardly warrants a conclusion about the validity of the rural population mixing hypothesis. In contrast, supporting evidence from studies of unusual population mixing in rural areas under various circumstances is now extensive [3].

In their Introduction, Järvelä et al. [1] referred to certain similarities between the population mixing hypothesis and the delayed infection hypothesis of Greaves, which holds that reduced exposure to general infections during infancy

increases childhood leukemia risk. The authors [1] stated that the latter hypothesis was supported by the large UK study by Law et al. [4], but overlooked the subsequently revised analysis by Roman et al. [5] which found results directly contrary to those predicted by the Greaves hypothesis.

References

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