Allergy and Cancer

MJ Schoemaker et al. Int. J. Cancer (2006) Vol.119 p 2165–2172
History of allergies and risk of glioma in adults

The statistical links between allergies and specific cancers continue to be reinforced and this paper finds that risk of glioma is reduced in those with a history of allergy. The lack of variation of protection with cancer type leads us to the tentative view that there would be unlikely to be an effect [protective or aggravating] of occupationally acquired allergy in the absence of atopy.

The debate about links between allergies and cancer continues. Overall there is no clear pattern of either protection or heightened risk; if there is a link it may be between specific types of allergy and specific kinds of cancer.

Occupational cancers may in some cases actually be the result of innocent allergies, but, of greater concern, would be if an acquired allergy could increase the risk of cancer.

The present study was of case (n = 965) control (n = 1716) design, set in the UK.

Glioma Cases were ascertained from neurosurgery, neuro-oncology, neuropathology, neuroradiology and neurology units in hospitals in the study regions, and for SE England, also from the regional cancer registry. The date of diagnosis was defined as the date of the first scan that revealed a space-occupying lesion in the brain or, if not available, date of biopsy or surgery.

Controls were chosen at random from GP lists and were age, gender and location matched.

Participation rates were 51% for cases (depending on severity of illness) and 45% for controls (who were more likely to be female).

History was obtained by interview. Subjects were asked whether they had ever been diagnosed with asthma, eczema and hay fever and the age at onset of this condition. Subjects were asked to specify the types of antiallergenic drugs they had ever used (antihistamines, nasal spray, eye drops, desensitisers and other (specified by the participant)).

The relative risk of glioma was significantly reduced in subjects reporting ever having been diagnosed with asthma (OR = 0.71, 95% CI: 0.54–0.92), hay fever (OR = 0.73, 95% CI: 0.59–0.90), eczema (OR = 0.74, 95% CI: 0.56–0.97) or any of these conditions (OR = 0.63, 95% CI: 0.53–0.76). Strength of reduced risk varied with delay between allergy and diagnosis date, and with ages, but these trends were inconsistent.

The results were not specific to any sub classification of glioma (e.g. by cell type).

Comment

Most studies of glioma and allergies show the same result. It is tempting to propose that allergies have the effect of increasing the ability of the immune system to recognise, and eliminate, brain tumours. But if so, why is there evidence that other cancers are more likely in those with allergies? The alternative, that glioma causes allergy, is logical but more uncertain especially when data on latency is considered and variation with histology might be expected in this case.

Participation rates were low but the invitation to take part in the study did not mention allergies and so should not be biased in that regard. Even so, the study could be influenced by bias.

It would be surprising if it was found that negligently caused allergy would have any effect on glioma risk (unless the agent was effective at causing both outcomes through independent mechanisms). This latter possibility was not specifically tested in the study but lack of age effect and lack of histology or specific allergy effect tend to suggest the observed association is innate.

Lung cancer is often found to be more likely among those with allergies e.g. DW Brown et al. Asthma and risk of death from lung cancer: NHANES II Mortality Study. J Asthma (2005) Vol.42 p 597-600.