

COMMITTEE ON TOXICITY OF CHEMICALS IN FOOD, CONSUMER PRODUCTS AND THE ENVIRONMENT

STATEMENT ON IDIOPATHIC ENVIRONMENTAL INTOLERANCE (IEI) – LAY SUMMARY

INTRODUCTION

1. Idiopathic environmental intolerance (IEI) (which includes what has sometimes been called multiple chemical sensitivity) is a long-term, disabling disorder, in which symptoms relating to various organs and bodily systems are triggered by exposures to chemicals or other environmental agents at levels well below those which cause adverse effects in the large majority of the population.

2. To address a need that had been identified in an earlier COT statement, we reviewed the published scientific literature on possible toxicological mechanisms for IEI linked to environmental chemicals. From consideration of its clinical features (symptoms, triggering exposures and clinical course) and associations with other illness, we concluded that a full explanation of IEI would need to account for:

- The wide and diverse range of chemicals that can trigger symptoms
- The occurrence of symptoms appearing to depend on the triggering exposure being discernible (e.g. by its smell or irritancy), and being more likely when the chemical is perceived as harmful
- The variety of symptoms that are produced - relating to multiple organs and bodily systems
- The triggering of symptoms, in some cases severely disabling, in people who suffer from IEI by levels of exposure to chemicals well below those that are tolerated by the large majority of the population.
- A progressive increase that can occur over time in the number and diversity of chemicals that cause symptoms in an affected individual
- The association of the disorder with psychiatric illness (although such illness could occur in some cases as a consequence of the distress caused by IEI)

3. We reviewed the evidence for hypothesised toxicological mechanisms and also heard a presentation on the psychological aspects of IEI given by Professor Omer Van den Bergh, Research Group on Health Psychology, University of Leuven, Belgium.

4. We reached the following conclusions;

i) We were unable to identify any toxicological mechanism that could satisfactorily account for all of the clinical features and epidemiology of IEI. In particular, we found no convincing evidence for any biological mechanism that would

explain why such diverse symptoms are induced in some individuals by such a wide range of chemicals, at levels of exposure well below those which are tolerated by the majority of people. Nor was there any convincing evidence of genetic differences in IEI patients that pointed to a toxicological mechanism for the disorder. It is conceivable that trigeminal irritancy (an unusual sensitivity to irritation of the nose and throat) could lead to the development of IEI in some individuals. However, not all of the chemicals that trigger symptoms in IEI patients are irritant.

ii) Whilst an unknown toxicological mechanism cannot be totally discounted, on current evidence, a much more plausible explanation for IEI is that it represents a psychologically mediated response to perceived harmful exposures. In support of this theory, IEI is associated with psychiatric illness, and overlaps clinically with other disorders such as chronic fatigue syndrome that appear also to have a significant psychological component.

iii) If psychological mechanisms do have a critical role in IEI, this does not preclude the possibility that differences in thresholds for airways irritation might render some individuals more susceptible to the disorder, although the evidence for such predisposition at present is weak.

iv) Given the plausibility of an important psychological component in IEI, we recommend that this should be considered further by the appropriate specialism within the Department of Health (and devolved administrations), as there may be implications for the development of treatments.

The full COT statement can be found at:

<http://cot.food.gov.uk/pdfs/cotstatementiei201103.pdf>

**Lay summary to COT Statement 2011/03
May 2011**