



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

STATEMENT ON A RESEARCH PROJECT INVESTIGATING THE EFFECT OF FOOD ADDITIVES ON BEHAVIOUR

1. We were asked by the Food Standards Agency to review the results of a study investigating the effects of particular food additives on the behaviour of pre-school children and to advise on the significance of the study for public health.

The study

2. A research team at the David Hyde Asthma and Allergy Research Centre, St Mary's Hospital, Isle of Wight carried out this study which was funded by the Food Standards Agency. The research has been submitted for publication and we were provided with a draft paper for comment. We initially reviewed this work in September 2000 when we discussed the results with members of the research team. At that time, we asked for additional data which was submitted for us to consider on 1st May 2001. The results were not available for consideration when our report on 'Adverse Reactions to Food and Food Ingredients' was published in June 2000.² Professor Eric Taylor of the Institute of Psychiatry, London, a member of the Working Group that drafted that report, assisted us in our deliberations.

3. The authors suggest that the study provides evidence that a mixture of five food additives, i.e. the preservative sodium benzoate and the food colours carmoisine, ponceau 4R, sunset yellow and tartrazine can affect the behaviour of three-year-old children.

The Committee's consideration of the study

4. The children were selected from the general population and the study involved putting the children on a diet which excluded the five additives for a period of one month. During this time the children were given, in a randomised double-blind protocol, coloured drinks with and without the five additives for separate periods of one week. We *note* that no statistically significant changes in the children's behaviour were apparent throughout the study when the children were assessed in a clinical setting. However, analysis of assessments made by the parents showed changes following challenge both with the additives and with the placebo.

Compared with the effect of the placebo, challenge with the additives resulted in a small but significant increase in deterioration in the children's behaviour. This observation is consistent with results noted in our recent report,² i.e. that parents report behavioural changes in children that are not detected by observational assessment in a clinic.

5. We *note* that the reported effects on behaviour were small when compared to previous research. The researchers suggested that the behavioural effects occur irrespective of whether the children are atopic, hyperactive or neither. We have reservations about the generalisation and interpretation of these findings in view of some aspects of the study design. We therefore consider that the data, as reported, do not allow us to determine whether there was an adverse effect of the additives in all the children or a possible idiosyncratic effect in a susceptible sub-group.

Conclusions

6. Published data suggest exclusion of specific dietary components can affect some measures of behaviour in some children. The researchers suggest that this study provides evidence that food additives had statistically significant effects on some measures of behaviour, irrespective of whether the children were atopic, hyperactive or neither. We *acknowledge* that the study is consistent with published reports of behavioural changes occurring in some children following consumption of particular food additives. We also note that the authors suggest that this may apply to children who are not considered to be hyperactive. However, we *consider* that it is not possible to reach firm conclusions about the clinical significance of the observed effects.

June 2001

COT Statement 2001/03

References

1. Bateman B, Hutchinson E, Warner J, Dean T, Rowlandson P, Grant C, Grundy J, Fitzgerald C, Stevenson J (2000). The effects of a double blind placebo controlled artificial food colourings and benzoate challenge on hyperactivity in a general population sample of pre-school children. Unpublished manuscript.
2. Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (2000). *Adverse Reactions to Food and Food Ingredients*, London: Food Standards Agency.