BRITISH MEDICAL JOURNAL

SATURDAY 7 SEPTEMBER 1985

LEADING ARTICLES

CLINICAL RESEARCH • PAPERS AND SHORT REPORTS • PRACTICE OBSERVED

MEDICAL PRACTICE

NO 6496 BRITISH MEDICAL JOURNAL 1985 VOLUME 291 613-684
BRITISH MEDICAL ASSOCIATION TAVISTOCK SQUARE LONDON WC1H 9JR.

WEEKLY. ISSN 0267-0623
ASTM CODEN: BMJOAE 291 (6496) 613-684 (1985)

CORRESPONDENCE

Because we receive many more letters than we have room to publish we may shorten those that we do publish to allow readers as wide a selection as possible. In particular, when we receive several letters on the same topic we reserve the right to abridge individual letters. Our usual policy is to reserve our correspondence columns for letters commenting on issues discussed recently (within six weeks) in the BMJ.

Letters critical of a paper may be sent to the authors of the paper so that their reply may appear in the same issue. We may also forward letters that we decide not to publish to the authors of the paper on which they comment.

Letters should not exceed 400 words and should be typed double spaced and signed by all authors, who should include their main degree.

Mortality of employees of the United Kingdom Atomic Energy Authority, 1946-79

SIR,—The papers by Dr Patricia Fraser and others and Dr Valerie Beral and others (17 August, p 435 and 440) on the mortality of UK Atomic Energy Authority (UKAEA) workers provide important contributions to knowledge about the likely effects of chronic exposure to low doses of ionising radiations. Taken in conjunction with the latest data for the workers at the Hanford nuclear plant in the United States, which relate to 15 992 white men who were employed at Hanford for at least two years and were followed to 1 January 1979,[1,2] they provide good evidence that the estimates of risk per unit dose of the International Commission on Radiological Protection (ICRP) were not far out, despite the fact that they were extrapolated from observations on men and women exposed acutely to much higher doses from the bomb explosions at Hiroshima and Nagasaki or from the use of radiotherapy. When combined (by weighting by approximate inverse variances) the UKAEA and Hanford data suggest that the risk of death from leukaemia is increased by about 1·3 per million person years per 10 mSv (1 rem) and that the risk of death from cancer of any type is increased by about 6·0 per million person years per 10 mSv, both of which estimates are, as it happens, about 1·5 times greater than the corresponding risks obtained by the ICRP by extrapolation from high doses received acutely.[3]

None of the above estimates can, of course, be as accurate as the one place of decimals cited for the risks per million person years would suggest. All the estimates have large standard errors, are qualified by many reservations about their accuracy by the investigators responsible for making them, and refer to slightly different lengths of follow up and to persons irradiated at different ages, both of which factors are known to affect materially the subsequent risk of disease. In these circumstances the most striking conclusion to be drawn from the combined experience of the UKAEA and Hanford workers is, in our opinion, that the best estimates of the risks per unit dose are very similar to those that have been estimated from very different types of exposure, rather than that the 95% confidence limits vary so widely (from a protective effect to 13 and 8 times the ICRP risk for leukaemia and all cancers respectively). For such wide variation is inevitable if the true risks are as low as appears and the number of workers with exposures anywhere near to the recommended limit is so small.

When many types of cancer are examined individually it must be expected, as Dr Beral and colleagues point out, that some statistically significant relations between mortality and dose will be observed by chance. It is, therefore, of interest to note that neither the strong relation with dose observed for cancer of the prostate in the UK study nor the strong relation observed for myelomatosis in the US study was borne out in the sister study. When information from the two studies is combined the relations of these two types of cancer with dose are no longer significantly different from zero ($p=0·31$ and $p=0·07$, two sided tests). Dr Beral and colleagues provide much supportive evidence to suggest that there was a special risk of cancer of the prostate in the UK workers, due perhaps to exposure to some unknown prostatic carcinogen associated with exposure to tritium. Such exposure may not have occurred at Hanford and the increased mortality from prostate cancer certainly needs investigation. The combined results of both studies can, however, be interpreted as suggesting that the atypically close associations with exposure to whole body penetrating radiation observed with cancer of the prostate and with myelomatosis, in one or other of the studies taken separately, were both due to chance.

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1 Tolley HD, Marks S, Buchanan JA, Gilbert ES. A further update of the analysis of mortality of workers in a nuclear facility. *Radiation Research* 1983;**95**:211-3.
2 Gilbert ES. How much can be learned from populations exposed to low levels of radiation? *The Statistician* 1984;**34**:19-30.
3 International Commission on Radiological Protection. Recommendations of the International Commission on Radiological Protection. *Ann ICRP* 1977;**1**:No 26.

Paediatric anaesthesia

SIR,—As both a parent and a one time anaesthetist I found Dr Adrian While's Personal View on the anaesthetic given to his daughter rather too close for comfort. His article was obviously even more uncomfortable for others and I was taken aback by the patronising nature of some of the replies (24 August, p 542): "I therefore prefer parents not to be present at induction." "I find [parents'] presence in the anaesthetic room intimidating." Anyone would think that it was the anaesthetists who were undergoing the operations.

These responses illustrate how doctors react to criticism even when that criticism is gently constructive and comes from a colleague. We usually respond by denying a problem, rationalising it in the interests of safety and efficiency, and then