Reproductive behaviour and consistent patterns of abnormality in offspring of Vietnam veterans

Sir,

I was surprised to see the study of the children of Tasmanian veterans reported in your journal.1 This study appears to be the same study as was presented on 27 and 28 May 1985 before a Royal Commission,2 set up by the Australian Government to investigate the use and effects of chemical agents on Australian personnel in Vietnam. Thus, this study has been examined in a legal setting, with the two authors subject to rigorous cross examination.

It is not surprising, however, that the authors omit reference to this cross examination and to the Royal Commission’s mention of them. At the end of his testimony, Professor Kerr conceded that the study “was not a proper professional exercise”. Moreover, when Dr Field was questioned on her classification of cases, she agreed that her original classification of seven malignancies was incorrect and that there was only one case that could be classified in this way. That is, the Royal Commission found that Dr Field had not collated the data in a credible scientific way, although they did not express an opinion as to whether she was consciously fraudulent.

The authors had only a minor role in the study design, and neither author was involved in, nor was able to comment on, the data collection. The Royal Commission could not ascertain conclusively who designed the study, but did determine that it was carried out mainly by volunteers connected with the Vietnam Veterans’ Association (VVA) under inexperienced scientific supervision. Most of the subjects were contacted on letters bearing the VVA’s letterhead. At that time, the VVA was actively pursuing its claims that Vietnam veterans were at high risk of fathering children with abnormalities. Therefore, the authors’ description of the design and methods for the study is seriously misleading.

The Royal Commission also found that the interpretation and conclusions from the study were unsustainable. For example, their report had claims of significantly higher rates for children of veterans compared with other children. It transpired that none of the comparisons of rates was statistically significant and, for some, the rates for children of veterans were lower than those for other children.

In summary, the Royal Commission concluded: “The study has many deficiencies not the least of which is its potential for selection bias. Its conclusions are patently ill-founded. It provides no support for the proposition that Vietnam veterans are fathering children with birth anomalies . . .

Indeed the rates discovered by the study suggest normal birth outcomes amongst such veterans. It would however be as unwise for anyone to draw negative conclusions from the study as it was for Professor Kerr and Dr Field to draw positive ones.”

In these circumstances, I urge my readers to read this paper with more than usual care: the authors were not actively involved in the design or data collection phases of the study, the collection of data was subject to bias and was carried out by inexperienced workers, and one of the authors has been shown to be misleading in her collation of the data.

Furthermore, the careful reader will find ambiguities and errors in the published paper (for example in table 1). I am bemused by the authors’ sentence introducing the material and methods section. It appears that they wish to concede that a proper rigorous scientific study was not done, and that it is scientifically acceptable for a poorly conducted study to be done instead. This attitude is also evident in their criticism of an “over-emphasis on statistical aspects” of studies that come to different conclusions from theirs. I believe that it would be generally accepted by scientists that the conclusions from biased and unreliable studies are useless and have no place in scientific journals.

Although I am an author of a paper which Field and Kerr have criticised, and was advising one of the counsel cross examining them, I believe that the above summary is factual and fair. I also believe that it is important that situations like this be brought to the attention of the scientific community.

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References


SIR,

In a recent article in this journal Field and Kerr reported a retrospective study of birth abnormalities, deaths, and health problems among the offspring of Tasmanian Vietnam veterans. Field and Kerr compared the reproductive outcome among the families of 357 Vietnam veterans with that among the families of 281 controls identified as friends or neighbours of the Vietnam veterans. The information was obtained by telephone interviews and was reported to have been validated by collateral information from the Vietnam veterans' control families' physician. Field and Kerr reported a statistically significant increase in the rate of perinatal deaths, major abnormalities, and diseases among the children of Vietnam veterans. They claimed that their results were consistent with those in earlier studies, and concluded that "the evidence in all available studies supports the involvement of a paternally mediated genetic effect" (p 825).1

We disagree with Field and Kerr's interpretation of their findings for three main reasons. First, we believe that they have failed to rule out alternative non-causal explanations of their data. Second, they have failed to provide an adequate analysis of the inconsistencies between their data and that of better controlled studies of the same issue. Third, they have not adequately dealt with the biological implausibility of the causal relationship for which they claim to have provided evidence.

Alternative explanations

It is customary in epidemiological investigations to consider and discount the possibilities of sampling bias, respondent bias, and observer bias before one is permitted to draw any stronger substantive causal inference from an observational study.2 We believe that Field and Kerr have failed to address these biases in either their research design, or the way in which they have analysed their data.

Sample bias

The description of how the sample was obtained by Field and Kerr creates the impression that a reasonably representative sample of Tasmanian Vietnam veterans was studied. Information about the conduct of the study which was supplied to the Evatt Royal Commission3 (volume 3, chapter VII, addendum, pp 166-87) suggests that there was considerable potential for bias to enter into the construction of the sampling frame of eligible Vietnam veterans, the process whereby Vietnam veterans came to be included in the study, and the way in which the control families were obtained.

First, according to the Evatt Commission, the sampling frame was drawn up by members of the Australian branch of the Vietnam Veterans' Association of Australia (VVAA), the local branch of the organisation which has championed the claim for Agent Orange. It included equal numbers of veterans who were and were not members of the VVAA3 (volume 3, chapter VII, p 173). If, as seems likely, Vietnam veterans who suffer from adverse reproductive outcomes are more likely to join the VVAA, then this decision biased the study sample from the outset.

Second, the invitation which was issued to Vietnam veterans to participate in the study was sent out under the letterhead of the VVAA3 (volume 3, p 173). Given the VVAA's advocacy of the herbicide claim such an invitation was likely to attract the sample to the purpose of the survey.

Third, the manner in which the controls were sampled is poorly described. Field and Kerr say that the Vietnam veterans in the survey were asked to "nominate for comparative purposes a family living in the same suburb or area with a father of similar age to the veteran and containing children"1 (p 820). They claim that sampling bias was minimised by only telling the veteran that the study was about 'family health' until they had nominated a control family. In view of the letter inviting the veterans' participation it is doubtful that this form of 'control' was effective. Moreover, although all 357 families were invited to nominate a control family, data were obtained on only 281 such families. Field and Kerr do not consider how this selection process may have affected the constitution of the control sample.

Respondent bias

In order to obtain valid retrospective information on reproductive outcomes questionnaires must be carefully constructed by skilled researchers and collateral information used to support the validity of the self-reports. These issues are critically important when Vietnam veterans are more likely to recall adverse reproductive events because of the publicity given to the alleged reproductive effects of herbicide exposure in Vietnam. There are serious doubts about the extent to which the problem of differential recall was addressed in the Field and Kerr study.

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