

SHORT REPORT

Acute psychological effects of suspected bioterrorism

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It has been suggested that the psychological implications of chemical and biological weapons may be more serious than any potential acute physical effects.¹ We report an investigation into the acute psychological effects of exposure to packages suspected of containing anthrax spores.

SUBJECTS, METHODS, AND RESULTS

In October 2001 13 people were exposed to packages suspected of containing anthrax spores in two separate incidents in government offices in South Wales. The management of both incidents was based on the local health authority's major incident procedure and emergency response plan for chemical incidents. The multi-agency response included evacuation and establishment of a cordon around the area where the packages were handled by the police; removal of the suspect packages by the fire service and submission to the Centre for Applied Microbiology and Research for testing; full decontamination of the exposed individuals by the ambulance service using a mobile chemical decontamination unit; obtaining baseline data from exposed individual; and, the provision of information on possible risks and the future management plan by public health specialists. Within 24 hours of each incident the powders were shown to be inert substances and this information was communicated to exposed individuals.

A postal questionnaire that incorporated a symptom check list used in the Hospital Anxiety and Depression (HAD) Scale² was sent to exposed persons one week after the incidents. Non-responders were sent a single reminder letter and copy of the questionnaire one week later.

The anxiety and depression scores of exposed persons were compared with age/sex matched scores from population controls that formed part of a previous study undertaken in South Wales to investigate the acute health effects of an oil spill.³ Contemporary controls were not used because of the extreme pressure under which we were operating at the time of these events and the availability of suitable control data from a recent large study in the same population. Data were analysed using SPSS version 10.⁴ The difference in mean anxiety and depression scores in exposed and unexposed persons were compared using a two sided *t* test assuming equal variances in the two groups.

The questionnaire was completed by 85% (11 of 13) of the exposed persons. Definite anxiety (HAD anxiety score > 10) was reported by 45% (5 of 11) of the exposed persons. The mean anxiety score was significant higher in exposed persons compared with the unexposed population control (table 1).

COMMENT

Despite the rapid identification of the powder in the suspect packages as inert substances we have shown significant acute psychological morbidity in the exposed persons in the week after the incidents. The HAD scale is a reliable and valid instrument for measuring the severity of emotional disorder.² Nearly half of the exposed persons were found to have definite clinical significant anxiety.

The events described in this paper occurred soon after the terrorist incidents in the United States on 11 September 2001 and subsequent covert release of anthrax in Florida.⁵ Acute psychological morbidity has been reported after oil spills,³ assault,⁶ and accidental chemical releases.⁷ However, we are unaware of any previously published research that shows significantly raised levels of anxiety after similar "false alarm".

Both incidents took place before multi-agency procedures for responding to suspect packages were well established in the United Kingdom. The full scale response by emergency services, which included removal of the packages by fire service personnel wearing full protective suits and complete chemical decontamination of exposed persons, may have contributed to the psychological trauma associated with the incident.

There is no evidence that debriefing reduces general psychological morbidity, depression, or anxiety after psychological trauma.⁸ The psychological impact of false alarms and criminal hoaxes can be minimised by only responding to a credible threat. As a result of the implementation of rigorous risk assessment by the police in the UK in the second part of October 2001 only 2.3% of reports of suspicious material led to a full scale response.⁹ In other European countries between 22% and 100%,¹⁰ and in the United States 15%,¹¹ of mail threats led to a similar response.

Contributors

BWM (guarantor) had the idea for the investigation, collected, entered and analysed the data, and drafted the paper. RAL contributed substantially to the design of the study, analysis and interpretation of the data, and revising the manuscript.

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Table 1 Hospital anxiety and depression scale score

	Exposed (n=11)	Unexposed (n=180)	Mean difference	95% CI mean difference	p Value*
Mean anxiety score	8.09	4.21	3.88	0.84 to 6.92	0.015
Mean depression score	4.09	2.09	2.01	-0.85 to 4.86	0.158

*Two sided *t* test.

Conflicts of interest: none.

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