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Abstract from the Literature

by
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Fajardo M, et al. Varicella Susceptibility and Validity of History among U.S. Coast Guard Recruits: An Outbreak-Based Study. *Mil Med* 2003;168(5): 404-407.

During a varicella outbreak among U.S. Coast Guard recruits, we examined varicella susceptibility serologically and evaluated the validity of disease history. Recruits completed a questionnaire to obtain information on demographics, history of varicella disease, and varicella vaccination. Serological testing for varicella-zoster virus immunoglobulin G antibodies was conducted using an enzyme-linked immunosorbent assay. Among 513 recruits, 21 (4.1%) were seronegative to varicella-zoster virus. Recruits born in Puerto Rico were more likely than recruits born in the U.S. states to be susceptible (prevalence ratio, 4.3; 95% confidence interval, 1.4%, 13.1%). A positive disease history was highly predictive of positive serology (99.1%); however, 73% of those with a negative or uncertain history were also immune. Four (19%) susceptible recruits reported a positive varicella history. Although immunity among recruits was high, varicella outbreaks may occur in closed adult settings due to the high risks of exposure and transmission. Varicella vaccination can prevent these costly, disruptive outbreaks.

COMMENT

This study confirms earlier findings that a positive disease history is adequate to assume positive serology and no need for vaccination. The 73% seropositive without disease history is higher than most reports - it generally comes in at around 60%. All this means is that it is worthwhile financially and medically to test for serology to varicella prior to giving the vaccine.

Hotopf M, et al. The Health Effects of Peacekeeping (Bosnia, 1992-1996): A Cross-Sectional Study - Comparison with Nondeployed Military Personnel. *Mil Med* 2003;168(5): 408-413.

OBJECTIVE

Our goal was to test the hypothesis that United Kingdom soldiers who were deployed to Bosnia had worse health than a non-deployed control group.

METHODS

We used data from a cross-sectional study designed to examine the health effects of service in the Persian Gulf War, which collected data in 1997 to 1998. We compared the two control groups - (personnel who were deployed to Bosnia and a non-deployed control group of military personnel (Era)) - on a number of health-related outcomes, including physical functioning, symptoms and ailments, psychological health, fatigue, and post-traumatic stress reactions.

RESULTS

The response rate for the Bosnia cohort was 62.9% and for the Era group 61.9%. A proportion of the Bosnia group had served in the Persian Gulf War and was found to have considerably worse health outcomes than the remaining Bosnia group or the Era group. The Bosnia group who had not served in the Persian Gulf War had broadly similar health outcomes to the Era group. The main differences were that the Bosnia-only group consumed more alcohol and reported more fatigue, hay fever, weight gain, irritability, avoidance, and night sweats. Apart from heavy alcohol consumption, the magnitude of these differences was small. The Bosnia-only group had slightly better physical functioning than the Era group, and there were two other symptoms and one ailment which were less common in the Bosnia-only group than in the Era group.

CONCLUSIONS

This study indicates that the health of United Kingdom military personnel who served in Bosnia from 1992 to 1996 was generally good in 1997 to 1998. However, further surveillance of veterans of the Balkan's War is required in the light of recent concerns.

COMMENT

A fascinating study, which was a direct descendent of the UK Gulf War Health Study. Something similar could be done in Australia with the control group for our Gulf War study. We do not have a significant group who went to Bosnia, of course, but would have a number who went to East Timor. This would be in the approximately correct time frame in relation to the UK Bosnia study.

Jones E, et al. Mortality and Postcombat Disorders: U.K. Veterans of the Boer War and World War I. *Mil Med* 2003;168(5): 414-418.

This study seeks to investigate the mortality rates of U.K. servicemen with post-combat syndromes following the Boer War and World War I. Random samples of veterans awarded war pensions for either disordered action of the heart (DAH) or neurasthenia/shellshock were compared with gunshot wounded ex-servicemen as controls. The destruction of pension records has led to a reliance on groups of the longest-lived veterans, which diminishes their representative qualities. Study groups were matched by rank and level of disability. With the exception of DAH cases in World War I, no statistically significant difference in mortality rates was found using Cox proportional hazards. The same DAH subjects were then compared with gunshot wound controls whose disability had been assessed 20% higher, and no statistically significant difference was seen. The reason why World War I veterans with DAH had a reduced life expectancy remains unclear, although it is possible that physician bias in assessment and the termination by the Ministry of Pensions of awards granted to healthy cases may have been factors. Post combat disorders suffered by U.K. servicemen after the Boer War and World War I were not generally associated with increased mortality.

COMMENT

Quantity of life was little altered, but how to measure quality of life? Is it better to measure number of divorces, post-war career progression, or other measures?

Stuadenmeier J, et al. Anthrax Refusers: A 2nd Infantry Division Perspective. *Mil Med* 2003; 168(7): 520-522.

The Department of Defence anthrax vaccination program has been in the news often recently. Concerns are cited over the safety and usefulness of the vaccine. This brief report describes some of the characteristics of anthrax vaccine refusers. This report examines the implementation of an anthrax vaccination program in a well-disciplined, forward-deployed Army unit facing a hostile enemy with access to anthrax biological weapon stocks.

COMMENT

Perhaps purported access would be more accurate. North Korea is very likely a bioweapon holder, but the body of the paper talks of 'believed to have'. The need to summarise in the abstract should not compromise accuracy. The paper presents three case studies: it appears that underlying refusal was a desire to separate, and anthrax refusal was a convenient way out.

La Mar J, Malakooti M. Tuberculosis Outbreak Investigation of a US Navy Amphibious Ship Crew and the Marine Expeditionary Unit Aboard, 1998. *Mil Med* 2003; 168(7): 523-527.

A Marine deployed aboard a US Navy amphibious ship had smear-positive, cavitary pulmonary tuberculosis (TB). Contact investigation ultimately found 21 active cases of TB among sailors and Marines who were aboard the affected ship. Approximately three months lapsed between the onset of the source patient's illness and appropriate diagnosis and treatment. During the contact investigation, 3338 persons received tuberculin skin tests and 712 were identified as new latent tuberculosis infection cases. Four persons diagnosed with latent TB infection developed active TB because of poor compliance with treatment. After personnel disembarked from

the ship, persistent efforts to identify persons with active disease and latent infections were successful in controlling further spread of TB in military units and local communities. The Mycobacterium tuberculosis bacteria isolated from the source patient and 16 of the other active cases were susceptible to all drugs commonly used to treat TB.

COMMENT

We had concerns in Australia with close contact with asylum seekers, particularly on the Manoora. Large numbers testing 'positive' to the skin test, but just when did they convert? The subsequently revised TB has not really been tested so far.

Frances S, et al. Survey of Personal Protection Measures against Mosquitoes among Australian Defence Force Personnel Deployed to East Timor. *Mil Med* 2003; 168(3): 227-230.

A questionnaire was completed by 955 Australian Defence Force soldiers from two battalion groups to determine their usage of mosquito repellents and bed nets during peacekeeping duties in East Timor. The survey showed that most soldiers (84%) used repellents, but only 19% used them daily. The soldiers used a number of repellent formulations; however, few soldiers used the ADF DEET (diethyl methylben-zamide) formulation containing 35% DEET in a gel. Most soldiers preferred several commercial formulations, which contained 7 to 80% DEET. The occurrence of mosquito-borne disease in soldiers was not affected by repellent usage, as the use of repellent was comparable between infected and non-infected individuals. The overall frequency of bed net usage differed in the two battalion groups. The occurrence of malaria in soldiers from one battalion group who did not sleep under a bed net every night of their deployment was significantly ($p = 0.007$) higher than those who did.

COMMENT

Bed nets have a big impact, but repellent does not. Consistency of use, comprehensiveness of coverage, and straight impact (or lack of it) of the repellent itself. It does reinforce that provision of free bed nets to villagers is likely to be the single most cost-effective method of reducing the burden of mosquito-borne disease.

Buguet A, Moroz D, Radomski M. Modafinil- Medical Considerations for Use in Sustained Operations. *Aviat Space Environ Med* 2003;74(6): 659-663.

An understanding of the consequences of sustained operations involving prolonged sleep deprivation is important to the military. Losses in cognitive performance in the order of 30% after one night and 60% after two nights of sleep loss have been shown to occur in several studies. Napping strategies have been proposed as one coping strategy for these performance decrements. An alternative solution is the use of stimulants. Modafinil may offer a safer alternative to more commonly used psychostimulants. It has been shown to counteract the effects of sleep deprivation with fewer side effects than amphetamine. Recent studies on the effects of modafinil during sleep deprivation are reviewed and compared with those of other stimulants such as amphetamine and caffeine, and to prophylactic naps. Recommendations are proposed for the use of modafinil in sustained military operations. For missions of about 24 hrs, modafinil is preferable to naps. For longer missions, naps should be considered, along with concomitant use of modafinil to help maintain performance levels. The authors discuss apparent 'overconfidence' and hyperthermia-inducing effects of modafinil and advise that these effects be taken into account if modafinil is to be used in any mission conducted in the field or in hot environments. It is also recommended that individual sensitivity to the drug be tested before any mission of a sustained nature, especially if it involves small operational groups or combat aircrew, where the impact of such effects on individuals would be more critical.

COMMENT

Some studies have suggested that modafinil at high doses in some individuals improves cognition so much that there is induced a feeling of being more aware and alert than in fact the person is. This can lead to overconfidence in their abilities and decision-making capacity, with resultant risk-taking. However; overall modafinil is a very effective drug, with no additive qualities and no impact on sleep latency.

Weber F, Kron M. Medical Risk Factors in Fatal Military Aviation Crashes: A Case-Control Study. *Aviat Space Environ Med* 2003; 74(5): 560-563.

BACKGROUND

Periodic medical examinations are the daily work of the flight surgeon. Their immediate impact on flight safety, however, has not been evaluated. This case-control study was done to ascertain whether, among German military pilots, differences exist in the results of periodic medical examinations that were associated with a higher odds ration of being involved in a fatal aircraft mishap.

METHODS

Participants were 146 German military pilots who died in air crashes and 292 controls. Cases and controls were matched 1:2 by aeronautical confounders (age, type of aircraft, aeronautical experience, and membership of the Air Force, Army or Navy). Data source was the central register of the German Air Force Institute of Aviation medicine; data were obtained from periodic medical examinations and included physical examination and laboratory data. Odds ration were calculated by conditional logistic regression analysis.

RESULTS

Descriptive statistics showed no distinct difference between cases and controls in most of the parameters considered except for total serum bilirubin, but multiple conditional logistic regression showed no remarkably different odds ratios for any of the parameters tested.

CONCLUSION

In aircrew who pass all the criteria for fitness to fly there are no important medical risk factors for fatal air crashes that can be detected by periodic medical examinations.

COMMENT

Do flight surgeons screen out all those who are at risk and ground them? I expect not. The number of mishaps due to medical conditions are very small due to the conservative health standards, selection standards and culture of fitness that generally pervades flying squadrons these days. These medicals included general medical, neurological, ophthalmologic, orthopaedic, dental and ENT examinations, ECG, bicycle ergometer testing, lipids, liver function tests, full blood count. Didn't see any reference to ethical clearance to access the records of deceased members.