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PERTUSSIS - A CASE FINDING STUDY AMONGST RETURNEES FROM OP HERRICK

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Abstract

We present a case finding study of serologically confirmed Pertussis amongst BFG-based returnees from Op HERRICK. The role of Pertussis in the aetiology of the commonplace "Kabul Cough" is discussed. It is recommended that enhanced health surveillance for Pertussis takes place both during and after future deployments to Afghanistan, to prevent the potential onward transmission of a potentially fatal illness to unimmunised children.

Introduction

Anecdotal descriptions of a chronic, usually non-productive, cough - so called "Kabul Cough"- have accompanied all multinational deployments to Afghanistan since 2001. This has thought to have been caused by environmental pollution, but air sampling by most of the national contingents involved has been equivocal in its results as compared with the high levels of pollution recorded by air sampling in the cities of other developing countries. Accordingly other factors, including respiratory tract infections, have been considered as aetiological factors in its genesis.

The potential role of Pertussis in the causation of respiratory symptoms amongst British personnel deployed on Op HERRICK (Afghanistan) has been highlighted by a small outbreak amongst immunised children in British Forces Germany (BFG) in April 2006, who were in contact with family members newly returned from serving in Afghanistan (1). Furthermore, a severe case of confirmed Pertussis arose in the Operational Theatre in December 2006.

To investigate the prevalence of Pertussis infection in a group of easily identified "symptomatic" soldiers returning from OP HERRICK, Chief Med ARRC commissioned BFG Health Service (HS) to organise a case finding exercise at a suitably located medical centre. The need for this study was further underlined by 2 symptomatic UK ARRC Officers being serologically diagnosed as Pertussis positive by the laboratory of a French Military Role 2 Hospital in Kabul in early 2007.

Methods

Returnees to HQ ARRC (situated at BFG Rheindahlen) meeting a case definition of: 14 days or more of cough plus paroxysms, whoop, or post cough vomiting, as defined by UK guidelines (2) were encouraged to attend a dedicated clinic at the beginning of February 2007, approximately 14 days after returning from Kabul. Serology and oral fluid samples were

taken with informed consent, which specifically advised about the health implications of a positive result and the likely need for antibiotic therapy to protect them and their contacts. Oral fluid samples were taken by rubbing a sterile swab along the gums for one minute until fully wet. Each sample was placed in an appropriate container supplied by the Respiratory and Systemic Infection Laboratory (RSIL) at the Health Protection Agency in Colindale, UK. The samples were sent via express courier to the RSIL where they were examined for anti-Pertussis toxin IgG antibody levels. In the absence of recent vaccination, RSIL deemed >100 serological enzyme Units or >70 oral fluid enzyme Units/ ml as being consistent with a recent infection with Pertussis.

Results

Table 1 details the 21 patients (19 male) sampled in the clinic, specifically excluding the two serologically positive cases already confirmed from Theatre. The age range was 28-49 years and the rank range was Corporal to Brigadier. From the tested cohort of 21 symptomatic individuals there were 2 confirmed and 1 probable cases of Pertussis infection.

Discussion

Whooping cough, also known as the cough of 100 nights, is a highly infectious and severe respiratory disease, spread by coughing and sneezing. The full blown disease takes one to three weeks to develop and the initial symptoms of runny nose, fever and dry cough can be difficult to distinguish from other common respiratory infections. Coughing gradually increases in frequency and duration, and within a few weeks, develops into prolonged and exhausting coughing bouts. Young children, especially babies in the first year of life, can become seriously ill due to uncontrollable coughing, many require hospital admission. Following the introduction of Pertussis vaccine into the universal childhood immunisation schedule in the 1950's the incidence of whooping cough in children in the UK declined rapidly. Following a scare regarding vaccine safety in 1974 there was a brief resurgence of the disease due to poor vaccine uptake, however over the last 30 years vaccine uptake has been high and incidence of the disease low. Recent information from the UK, NW Europe and North America (3-

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Table 1: Details of symptomatic returnees to HQ ARRC who were serologically assayed

ROLE IN KABUL	DURATION OF SYMPTOMS	TYPE OF SYMPTOMS	CONTACT WITH LOCAL POPULATION
Movements Officer	6 Weeks	Dry/ Productive Cough	No
Staff Officer	6 Weeks	Fever/ Lethargy/ Cold	Yes
Ops Officer	1 Month	Hacking Cough/ Gagging	Yes
Med Plans Officer	2 Months	Nasal/Headaches/Cough	Yes
Cj4 Log Plans	3 Weeks	Dry Cough	Yes
Ops Officer	6 - 8 Weeks	Persistent Cough	Yes
Ops Officer	1 Month	Nasal/Headaches/Cough	No
Fincon	18 Days	Nasal/Headaches/Cough	Yes
Provost Marshall Dept	2 Weeks	Nasal/Headaches/Cough	Yes
HQ ISAF	4 Months	Nasal/Headaches/Cough	Yes
Staff Officer	3 Weeks each x 2	Nasal/Headaches/Cough	No
Sp Officer	1 Month	Fever/Dry Cough/Headaches	Yes
Plans Officer	4 Weeks	Dry Cough	No
Adjt	4 Weeks	Chest Infection	Yes
So3 Ana	6 Weeks	Productive Cough	Yes
Staff Officer	15 Days	Severe Cough	Yes
Legal	2 Months	Cough/ Vomit	Yes
Staff Officer	1 Month	Hacking Cough/Gagging	Yes
ISAF	Ongoing	Nasal/Headaches/Cough	Yes
Engr Officer	3 Weeks	Dry Cough/Drowsy	Yes
N/A	7 Weeks	Cough/Vomit	N/A

5) suggests that there is resurgence in the incidence of whooping cough; not in children but in adolescents and young adults. It is suspected that the immunity gained from universal childhood immunisations wanes by early adulthood (6). Although all age groups are susceptible to whooping cough, older children and adults may get a milder form of disease. This is often mistaken for a flu-type illness.

The Public Health implication is the potential for the transmission of the disease from a mildly symptomatic adult to an immunologically naïve (unimmunised) child.

Young children, especially babies in their first year of life, can become seriously ill due to uncontrollable coughing. Many require hospital admission and the illness can sometimes lead to pneumonia, convulsions, brain damage and even death.

The large perspective cohort study (3) which demonstrated a sustained increase in the incidence of disease in the United Kingdom, together with recently enhanced immunisation schedules based on waning immunity to Pertussis amongst young adults in Germany, the USA and France(7-9) would indicate that despite high vaccination rates (> 95% in the BFG population and >90 % in Germany), sporadic cases are not to be unexpected. Given the current military role of provision of security for extensive reconstruction and development activities in Afghanistan, which necessarily involves close contact between the military and the local populace and where

childhood immunisation rates against Pertussis were last recorded at only 76% (10), there is the potential for significant increased transmission into the BFG community from returning soldiers.

Despite the small sample size and the fact that these figures clearly do not represent an overwhelming problem at present, we are concerned about these potential risks of transmission, particularly to unimmunised children as highlighted by the 2006 outbreak. We identified a probable Pertussis infection rate of 14% amongst headquarters staff; although many of these staff travelled throughout Afghanistan during their deployment, it may be that a different immunological picture would emerge were troops from British Field Units in Afghanistan tested. Given the need to maintain health protection of vulnerable members of the BFG community, we believe that consideration should be given to:

- Enhanced pre-deployment preparation
- Enhanced health surveillance during deployment and post deployment
- Possibly booster Pertussis immunisations
- Conducting a large scale study of all British military personnel returning from Afghanistan to better gauge the prevalence of active Pertussis infection.

These recommendations are due to be discussed in the near future at an outbreak control meeting with DMSD and Health Protection experts.

Conclusions

Unrecognised Pertussis infection may be one of the aetiological factors for Kabul cough and soldiers returning from OP HERRICK risk transmission of Pertussis into the BFG community. We recommend increased health surveillance for this problem and consideration of the role of booster immunisations to personnel prior to deployment to Afghanistan. A larger study including field unit soldiers is required to further assess this problem.

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