Current Medicine Research and Practice 9 (2019) 37–38

Contents lists available at ScienceDirect

Current Medicine Research and Practice

journal homepage: www.elsevier.com/locate/cmrp

Snippets

Tulsi Chugh

D-702, Som Vihar Apartments, RK Puram, New Delhi, 110022, India

ARTICLE INFO

Article history:
Received 11 January 2019
Accepted 17 January 2019
Available online 29 January 2019

Keywords:
Infectious diseases
Zika virus
Nipah virus
Wars

1. Wars and infectious diseases

Infectious diseases take a heavy toll on armies and civilians during wars. During Napoleonic wars, British soldiers died of infectious diseases eight times more than from battle wounds. In the American civil war, two-thirds of the total loss of lives was due to malaria, enteric fever, pneumonia and dysentery. Overcrowding, poor sanitation, nutrition, vector control, public health and healthcare services lead to serious sufferings.

Influenza pandemic of 1918 infected 500 million people, one-third of total world population, with an estimated 20 to 100 million deaths. The pandemic started in the early 1918 during World War 1, also called the Great War. The loss of life due to influenza had a significant effect on the defeat of Central Powers. The pandemic continued through 1920, well after the end of the war. The site of origin of H_1N_1 strain of the virus of this so-called "Spanish Flu" is unknown.[1]

In addition, World War 1 also gave trench-warfare diseases: trench fever (caused by *Bartonella quintana*, the vector being the body louse), trench mouth (due to *Fusobacterium*, *Prevotella* and Spirochaete species) and trench foot, which often led to gangrene and amputations.[2]

Infectious diarrhoea (ID) has always been the most common problem in deployed military personnel. US military had a burden of diarrhoea in the Middle East and Africa during World War 1 and again during Kuwait–Iraq operations. ID has been around in other wars as well. Field sanitation is the underlying cause. Diarrhoea and dysentery may not kill but cause lost duty days and reduced performance.[3] One of the earliest and elaborate accounts of ID was described by Sir Arthur Hurst in 1918 in his book "Medical Diseases of the War". World War 1 led to a better understanding of discoveries of Louis Pasteur and Robert Koch, infectious causes of diseases and their prevention and control through improved sanitation, personal and hospital hygiene, vaccines and serotherapy. The discovery of penicillin during the Second World War was a turning point for the treatment of war injuries and sexually transmitted diseases.

Conflicts and infectious diseases have always been comrades. Key interventions can reduce the burden of these preventable diseases.

References:

1. Chorba T, Breedlove B. Concurrent Conflicts—the Great War and the 1918 Influenza Pandemic. Emerg Infect Dis. 2018; 24:1968–1969.

2. Chorba T. Trench Conflict with Combatants and Infectious Disease. Emerg Infect Dis. 2018; 24:2136–2137.

3. Riddle MS, Savarino SJ, Sanders JW. Gastrointestinal infections in deployed forces in the Middle East theater: an historical 60 year perspective. Am J Trop Med Hyg. 2015; 93:912–7.

2. Zika virus in India

The Ministry of Health and Family Welfare, Government of India, reported three confirmed cases of Zika virus infection in the district of Ahmedabad in Gujarat on May 15, 2017. These were detected by random serology of cases who had fever (34-year-old female, 22-year-old female and 64-year-old male). These cases were seen during November 2016 and February 2017. The disease was mild, and all survived.[1] Later, 35,000 human sera and 18,000 mosquito samples were tested, and all were seronegative. In view of this, there is a need for our clear understanding of this disease in India.[2] Zika virus is a *Flavivirus* transmitted to humans by *Aedes aegypti* mosquito, which also transmits dengue fever and chikungunya fever. Infected humans can spread the virus by sexual route. The virus is known to replicate and persist in the semen of infected individuals (other salient viruses that can do so are Ebola virus, Marburg virus, hepatitis B and C viruses, cytomegalovirus, HIV and Epstein–Barr virus).[3] During viraemia, testes, epididymis and accessory glands get infected. There is thus a risk of transmission to developing embryos causing congenital infections (microcephaly). The virus is transmitted by *Aedes aegypti*. This mosquito multiplies in freshwater and bites during the day.

Earlier study in 1952––54 in India showed the presence of Zika virus in Maharashtra. However, the diagnosis was based only on

E-mail address: chughtd@gmail.com.

https://doi.org/10.1016/j.cmrp.2019.01.008
2352-0817

antibody detection. The American Society of Microbiology in a review in 2016 also referred to these 1952 data from India.

The first outbreak of Zika virus infection was reported in a southern Pacific island, followed by a major outbreak in 2015 in Brazil. The disease usually manifests flu-like symptoms for less than a week in most cases. Psychosomatic disabilities, loss of cognitive functions and deaths are known. A series of cases (13/32 infants of microcephaly were first reported in September 2016 in Brazil.[4,5,6]

References:

1. Bhardwaj S, Gokhale MD, Mourya DT. Zika virus: Current concerns in India. Indian J Med Res 2017; 146:572–5.

2. Sapkal GN, Yadav PD, Vegad MM, Viswanathan R, Gupta N, Mourya DT. First laboratory confirmation on the existence of Zika virus disease in India. J Infect. 2018; 76:314–317.

3. Goncé A, Martínez MJ, Marbán-Castro E et al. Spontaneous Abortion Associated with Zika Virus Infection and Persistent Viremia. Emerg Infect Dis. 2018; 24:933–935.

4. Rosenstierne MW, Schaltz-Buchholzer F, Bruzadelli F et al. Zika Virus IgG in Infants with Microcephaly, Guinea-Bissau, 2016. Emerg Infect Dis. 2018; 24:948–950.

5. Musso D, Nhan T, Robin E et al. Potential for Zika virus transmission through blood transfusion demonstrated during an outbreak in French Polynesia, November 2013 to February 2014. Euro Surveill. 2014; 19. pii: 20761.

6. Subissi L, Dub T, Besnard M et al. Zika Virus Infection during Pregnancy and Effects on Early Childhood Development, French Polynesia, 2013–2016. Emerg Infect Dis. 2018; 24:1850–1858.

3. Nipah virus infections in India

Nipah virus (NiV) encephalitis was first described in Siliguri, West Bengal, India in early 2001. However, the causative agent NiV was identified later in 2004––05. NiV-specific IgM and IgG were detected in 9 of 18 patients' sera, and reverse transcription polymerase chain reaction (RT-PcR) identified specific RNA in the urine of 5 patients. Sequence analysis showed that this NiV was closely related to isolates from Bangladesh.[1,2]

NiV, a zoonotic virus, causes highly fatal febrile encephalitis. The reservoir is fruit bat (*Pteropus* genes). The disease has been earlier reported in Malaysia, Cambodia, Singapore and Bangladesh. It is directly or indirectly transmitted from infected bats to humans. It has also been transmitted from pigs to man; human to human transfer has also been known to occur.[3]

NiV outbreak has now been reported in Kerala in 2018. Earlier outbreaks were reported in West Bengal in 2001 (45 deaths) and in 2007 (5 deaths).

The index case in the present outbreak was seen in a Kozhikode hospital, who passed the virus to 16 individuals in the hospital. Another two were infected later. Of these 19, only 2 survived. Tests proved that fruit bats were the source of those who succumbed to the disease.[4] The outbreak was localised only to two districts in Kerala: Kozhikode and Malappuram. No new cases have been reported since June 1, 2018. Acute respiratory distress syndrome and encephalitis were observed among these patients.

References:

1. Chadha MS, Comer JA, Lowe L et al. Nipah virus-associated encephalitis outbreak, Siliguri, India. Emerg Infect Dis. 2006; 12:235–40.

2. Kumar S. Inadequate research facilities fail to tackle mystery disease. BMJ. 2003; 326:12.

3. Farrar JJ. Nipah-virus encephalitis–investigation of a new infection. Lancet. 1999; 354:1222–3.

4. Chatterjee P. Nipah virus outbreak in India. The Lancet 2018; 391:2200.

Conflict of interest

None declared.