Brucellosis update in Libya and regional prospective

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Brucellosis is a global bacterial zoonosis responsible for high morbidity in humans and significant livestock economic losses. While brucellosis remains a public health concern worldwide, its global geographic distribution is variable, largely due to different management schemes; however, paucity of information renders the status of brucellosis unclear and incomplete in many countries, especially those with low income and under-developed infrastructure. This short article summarizes and discusses recent important updates on brucellosis from the North African countries, with a particular brief emphasis on the current status and recent updates in Libya.

Keywords: Brucellosis, Libya, North Africa, Zoonoses, Epidemiology

Background

Brucellosis, also known as ‘Malta fever’, was first discovered in the 1850s¹ and remains one of the most economically important zoonoses worldwide.^{2,3} Brucellosis has a limited geographic distribution and remains a public health threat in the Mediterranean and Middle East regions, as well as in large parts of Asia, Latin America, and Africa.^{4–7} Information in most of these regions is incomplete, inadequate, and probably underestimated; however, brucellosis in the most endemic regions of the globe (i.e. North African and Middle Eastern countries) is estimated at <0.01 to >200 per 100 000 population.⁶

Brucella are highly adapted pathogens and several species are zoonotic agents, *B. melitensis* is the leading cause for human brucellosis followed by *B. abortus* and *B. Suis*.⁸ *B. melitensis* biovar 3 is the main reported strain from Libya and the most commonly isolated species from animals in most North African countries. *B. melitensis* biovar 2 and *B. abortus* biovar 3 have also been widely detected in animals from several North African countries, and most recently, *B. suis* has been detected in Egypt, suggesting a potential role of livestock as a reservoir of several brucella species.⁸ Despite continued reporting of brucellosis, in humans and animals, there is paucity and conflicting information, especially from

the endemic countries such as those in the North African region.

Libya Update

A recent retrospective study by Al Toumei Ibtesam⁹ reviewed the laboratory records of the National Centre of Animal Health to identify seropositive brucellosis cases from among the suspected human samples referred from hospitals in the western mountain region (Al Ġabal al Gharbi district) of Northwest Libya for the periods of 1983–2008 and 2009.⁹ The seropositive rates for the two respective periods were 50% ($n=1719/3423$) and 65% ($n=34/52$), with an approximated overall prevalence of 0.2–22 per 100 000 inhabitants.⁹ A similar study performed by Ahmed *et al.*¹⁰ involving humans and domestic animals found 40% seropositivity among healthy suburban residents and 28% among ruminants and camels in the northwest region of Libya. Both studies have identified socioeconomic and cultural associated risk factors (notably, raw milk consumption) and identified high *Brucella* endemity in the northwest region of Libya.

Brucellosis remains a global concern and a neglected zoonosis with little attention being paid to understanding the economic burden, control and prevention in North Africa.⁶ Libya, similar to other North African countries, has little to no investment in veterinary and public health sectors, as well as weak surveillance, management, and effective socioeconomic programmes. Brucellosis in Libya is a widespread zoonosis largely associated with socioeconomic factors;¹⁰

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unfortunately, a rise in human brucellosis suspected cases is occurring in the northwest region (personnel communication with local health personnel, 2014). Controlling brucellosis in animal reservoirs is the key to efficient control and to significantly reducing the incidence of brucellosis in humans. Despite the advances made in surveillance and control, the prevalence of brucellosis is increasing in many countries due to various sanitary and environmental factors, socioeconomic and dietary habits, and political and security situations.¹¹ The current political instability and armed conflicts in the already-endemic North African region would certainly affect any ongoing prevention or control management programmes of brucellosis, possibly at an alarming rate.

The published studies from Libya, as well as from neighbouring countries, are mostly dated and limited in scope, possibly due to low scientific and publication outcome. Additional updated studies are required, preferably using advanced surveillance and management programmes to more accurately determine the current status of brucellosis and other infectious agents in animals in the North African region such as *Mycobacterium tuberculosis* and *Escherichia coli* 0157. In addition, accessing new technologies, developing suitable laboratory facilities, increasing awareness, and promoting collaboration between veterinary and human healthcare personnel will be important to controlling brucellosis. Local authorities, as well as individuals/institutions in the public and private sectors, should coordinate suitable and effective strategies to control and eradicate this disease. Finally, since brucellosis is highly endemic in the North African region and its neighbouring regions, international and intraregional coordination and collaborations are necessary for its control and for that of other zoonotic infectious diseases.

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