Human Brucellosis, a Heterogeneously Distributed, Delayed, and Misdiagnosed Disease in China

TO THE EDITOR—Brucellosis is a common zoonotic disease worldwide [1]. The epidemiology of human brucellosis has drastically changed owing to changing sanitary and socioeconomic conditions, and the substantial increase in international travel. New foci of human brucellosis have emerged or reemerged, with brucellosis becoming a travel-related disease, particularly in nonendemic areas [2–4]. Awareness of the geographic distribution and characteristics of brucellosis is valuable not only for the disease control in endemic areas, but also for preventing and diagnosing travel-associated disease in nonendemic areas [5, 6].

To investigate the geographic distribution of the human brucellosis epidemic in China, data were extracted from the National Notifiable Disease Surveillance System and analyzed. From December 2004 to July 2010, 141,604 laboratory-confirmed cases were reported. A geographic distribution analysis showed that brucellosis is mainly distributed in some of the northern provinces of China. The 5 provinces with the highest incidence include Inner Mongolia (45.83%), Shanxi (13.94%), Heilongjiang (13.82%), Jilin (10.29%), and Hebei (6.31%); these provinces accounted for >90% of the reported cases. Nationwide, the annual incidence, at a county level, ranged from 0.00 to 1395.84 per 100,000 (Figure 1).

Timely diagnosis is important for treating brucellosis and preventing chronic infections [7]. We examined the case data for possible contributing factors to delayed diagnoses. Of these 141,604 confirmed cases, only 26.98% were diagnosed within 7 days of symptom onset, 43.83% within 14 days, and 2.39% longer than 6 months, indicating that a large proportion of the cases had a delayed diagnosis. Further analysis showed that the average diagnosis delay was shorter in the high-incidence areas than in the low-incidence areas (35 vs 59 days, \(P < .001\)), and shorter in urban areas than in villages (32.55 vs 40.62 days, \(P < .001\)). In addition, patients who traveled or migrated across provinces had longer delays than did patients residing within an area (43.54 vs 36.82 days, \(P < .001\)). These data indicated that diagnosis delays were multifactorial and may have contributed to the chronicity of brucellosis in some population segments.

Epidemiological information regarding 2,060 cases were collected from brucellosis clinics and analyzed to investigate the reasons for the delays in diagnosis. Surprisingly, 57.62% of the patients had been misdiagnosed or suspected of having other diseases with similar clinical symptoms. Approximately 24.34% of the “delayed diagnosis” patients had traveled to or migrated from a high-risk area. All the patients had experienced direct contact with animals and/or consumed contaminated animal products prior to disease onset. The absence of characteristic symptoms and a general unawareness of epidemiological information contributed to the misdiagnoses.

The lack of typical clinical manifestations makes it difficult to diagnose brucellosis, primarily contributing to the misdiagnosis and delay. The availability of additional information regarding the geographic...
distribution of the disease and its associated epidemiological information might help improve diagnosis. The presence of a fever of unknown origin, particularly when associated with travel to, or residence in, a high-risk region and contact with or consumption of products derived from potentially contaminated animals should alert health professionals to the possibility of brucellosis [2].

Notes

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