LEPTOSPIROSIS: CURRENT STATUS AND FUTURE TRENDS

RA Hartskeerl

Leptospirosis is particularly prevalent in warm humid countries. Based on global data collected by International Leptospirosis Society (ILS) surveys, there are currently 300,000 to 500,000 severe cases of leptospirosis annually. However, this number presents probably a strong underestimation and the true extent of leptospirosis remains unknown because worldwide surveillance is lacking. Surveillance and notification is notably absent in those countries where climatologic, ecological and socio-cultural conditions are favourable for a high incidence of leptospirosis.

Currently leptospirosis is recognised as a globally re-emerging disease with marked increased number of cases and frequent outbreaks in South East Asia (Thailand, India, Malaysia, Indonesia) and Latin America. In spite of this, leptospirosis remains a grossly neglected disease and suffers from unawareness. The main reason for this is the difficult diagnosis. Leptospirosis has a wide variety of clinical manifestations and is easily confused with many other diseases that are endemic and epidemic in the same areas and conditions and mostly receive much more alertness.

Increased awareness is essential. The ILS and other national or regional initiatives are instrumental in this by (i) organising and supporting scientific meetings at regular intervals and (ii) collecting and presenting worldwide epidemiological information.

ILS has performed three worldwide surveys by now and has, with financial support of the WHO created LeptoNet, an on-line database to insert and analyse epidemiological data at a global scale. However, there seems to be only a very low level of interest in the community of leptospirologists to participate in these essential activities.

This represents a serious worry. If there is a lack of commitment to map the global disease burden of leptospirosis at the very central level of scientists dedicating their time on the issue, then how can we expect to alert notably national and international health decision makers and organizations on the existence of the leptospirosis problem? The attention of these parties is crucial to achieve implementation of notification and surveillance systems and the subsequent design of control and prevention measures in countries where they are badly needed. Increased efforts to stimulate notably ILS members to participate in these activities are an important future activity.

Currently, there is an avalanche of new (commercially) available tests (serological, PCR and non-DNA antigen detection tests) but many, if not most, are not well-validated and compared for optimal performance. This will require a solid comparison in a worldwide multi-centric study using well-defined serum banks and well-designed prospective study protocols. This requires time, money and effort and therefore it is questionable, whether this will be a feasible future activity.

On the education level, courses will help to disseminate knowledge and expertise in the countries where this is needed. To that effect, several national and international courses have been organised in the past in various parts of the world. There is a promising increase in frequency and quality of such courses.

Conventional (serological) characterisation of leptospires requires the availability of viable bacteria, often implying shipment to international reference centres. However, shipment of pathogenic leptospires is becoming increasingly difficult and expensive and, considering the lacking financial support of international organisations, is starting to present a practical impossibility. Although sound characterisation should require both a genotypical and phenotypical analysis, it is obvious that the future will aim at the development of molecular typing tools generating electronically portable data for comparison and analysis through online databases, hence obviating the need of shipment of viable leptospires.

Currently, there is great progress in studying the genomics, transcriptomics and proteomics of leptospires, holding promise for unravelling the pathogenesis of leptospirosis and the development of effectively cross-protecting recombinant vaccines for control. Indeed, the progress in leptospirosis research is rapidly increasing. To hold up with these developments, it has been decided to increase the frequency of ILS meetings into a biennial event with the next meeting being organised in 2007, in Quito, Ecuador.

Department of Biomedical Research, Royal Tropical Institute (KIT), Meibergdreef 39, 1105 AZ Amsterdam, The Netherlands

Source of Support: Nil. Conflict of Interest: None declared.