LEPTOSPIRA SPP SEROGROUPS IDENTIFICATION IN HUMAN AND PIGS SERUM SAMPLES FROM TWO PROVINCES IN VIETNAM

Van Cao[1], Minh-Anh Dang-Trinh[1], J. S. Alonso[2], J. Gilbert[2], M.L. Lapar[2], Duong Nguyen Khang[3], Mai Van Hiep[4]

1. Pasteur Institute in Ho Chi Minh City, 167 Pasteur street, District 3, Ho Chi Minh city, Vietnam.
2. International Livestock Research Institute (ILRI), Hanoi, Vietnam
3. Nong Lam University, Ho Chi Minh City, Vietnam.
4. Department of Animal Health (DAH), Ho Chi Minh City, Vietnam

Introduction

Since the 1930s, Viet Nam has been known to be an endemic region for leptospirosis [(a)(b)]. However, epidemiological data for an evaluation of the importance of leptospirosis among pig and exposed household people, are still limited [(c)(d)].

From 2012 to 2013, under the IDRC supported 'Ecosystems Approach for the control of zoonotic diseases in Southeast Asia project', we carried out a cross-sectional study to determine: i/ the prevalence of leptospirosis among pigs and among exposed human population from the same location; ii/ the most frequent serovars circulating among human and animal and iii/ the environmental and socio-risk factors that may be associated with *Leptospira* infections.

Materials and methods

Between 2012 and 2013, blood samples were collected from pigs at slaughterhouse in two southern provinces (Binh Phuoc and Tien Giang) in Vietnam (n=1005).

By tracing their farm of origin, 202 pig-raising households were identified, subsequently interviewed and human sample collection were conducted at household level. 882 of the sampled pigs belonged to the participating households that provided consent to sampling.

The samples were processed in the laboratories of the Institut Pasteur in Ho Chi Minh City. Serum was extracted and tested for presence of antibodies against 18 different Leptospira serogroups by the Microscopic Agglutination Test (MAT; cut–off value ≥ 1:100 considered positive).

Results & Discussion

The proportion of positive human samples was higher in Binh Phuoc province (19.6%) than in Tien Giang province (9.7%). Conversely, more pigs were positive in the latter province (29% versus 22%). Men were more likely positive than women.

In pigs, the serogroups Pyrogenes and Hustbridge were most common in Tien Giang, while Husbrige, Icterohaemorrhagiae and Louisiana serogroups were most frequently found in Binh Phuoc.

In humans, 10 serogroups were found. Bataviae, Icterohaemorrhagiae and Panama were most commonly identified from human in Tien Giang province, while Pyrogenes and Icterohaemorrhagiae were were most common in Binh Phuoc.

Conclusions

The results show that few factors related to the husbandry practice and habit in a small-scale farms, where animal are in closed contact with people and with the surrounding environment, may stimulate the transmission of leptospirosis.

Leptospira infection, indicated by seropositivity, is common among pigs and human in the south of Vietnam, may be explained by a favorable environment rather than certain risk factors.

The impact of leptospira on the economic lost then should be carefully evaluated.

References

(a) Berman SJ *et al.* (1973) *American Journal of Tropical Medicine and Hygiene*. 22, pp. 796–801.
(b) de Lajudie P & Brygoo ER (1953) *Medecine Tropicale Revue: du Corps de sante Colonial*. 13, pp. 466-481.
(c) Laras K. *et al*. (2002) *American Journal of Tropical Medicine and Hygiene*. 67 (3), pp. 278-286.
(d) Van C.T.B. *et al*. (1998) *Transactions of the royal society of tropical medicine and hygiene.* 92, pp. 626-628.

- Contact name: Dr. Van Cao - Pasteur Institute in Ho Chi Minh City, 167 Pasteur Street, District 3, Ho Chi Minh City, Vietnam.
- Phone: 848-38205131 - Fax: 848-38231419 - E-mail: vancao.pasteur@gmail.com
- Funding: International Development Research Centre