One Health approach in management of Streptococcus suis Infection

EPIDEMIOLOGICAL FACTORS AND CLINICAL MANIFESTATION IN PATIENTS WITH S. SUIS MENINGITIS

TREATED IN THE HOSPITAL FOR TROPICAL DISEASES AT HCM-CITY

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Outline

1- Introduction:
2- Objective and Method
3- Results
4- Discussion
5- Conclusion
1- Introduction:

+ Human *Streptococcus suis* infection is an emerging zoonotic disease in Southeast Asia

+ Outbreaks with high morbidity and mortality and endemic disease

+ Major negative impact on the economically important pig industry across the region

+ Reports from HTD: number of annual cases of *S. suis* infection has been increasing from **3 cases in 1998 to up to 39 cases in 2006**
Cases of S. suis infection admitted to HTD by years

Reports from the Hospital for Tropical Diseases at Ho Chi Minh City

<table>
<thead>
<tr>
<th>Year</th>
<th>Cases</th>
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<tbody>
<tr>
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<td>PCR(+)</td>
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+ Research Questions:
1- What are the epidemiological factors related to *S. suis* meningitis?
2- What are clinical symptoms of *S. suis* meningitis?

+ Objective: To investigate the epidemiological factors and clinical symptoms of patients with *S. suis* meningitis

+ Method: Cases series study - Patients admitted to HTD at HCM city
3- Results (1)

Number of S. suis meningitis Patients admitted to HTD by months

72 cases of S. suis meningitis

Number of Patients

Months

0 1 2 3 4 5 6 7 8 9 10 11 12

5 4 4 5 5 8 10 7 6 6 9 5
3- Results (2)

- 87.5% male; 32% - from HCM city
- 18.1% - farmers
- 33.3% - regular contact with pigs and pork
- 18% had a skin injury

Proportion of S.suis meningitis Patients with skin injuries
Occupation: Butcher

Photo by H.D. Trung Nghia
The proportion of *S. suis* meningitis patients having contact with pigs and pork

- **No contact with pigs and pork** - 59%
- Contact with livestock - 14%
- Occupation: Butcher - 11%
- Slaughtering at home - 4%
- Meat cooking - 4%
- Eating uncooked or partially cooked pork products - 8%
Contact with livestock
uncooked or partially cooked pork products
Clinical symptoms:
- 98.6% fever- 93.1% headache
- 63.9% - perceptual disorders
- 58.3% - nausea and vomiting
- 27.8% - body aches
- 9.7% - diarrhea
- 38.9% - decrease or loss of hearing
Age and sex: The majority of patients were working-age men: risk of exposure to pathogens including professional exposure, alcoholism (drink alcohol with uncooked blood) and consuming uncooked pork products.
4- Discussion (2)

+ **Risk factors:** The proportion of patients exposed to live pigs or pork products before infection was 41.7%, including 17% that were both in contact with pigs and ate uncooked pork (uncooked blood)

⇒ *S. suis* infection can be transmitted by the gastrointestinal tract
+ **Skin lesion**: 13 cases (18%) had skin injuries. The skin injuries were usually small and difficult for the doctor to observe upon admission.

⇒ noted patient history and performed a physical examination to identify potential skin lesions where infection might have originated.
+ **Seasonality**: *S. suis* meningitis does not have major seasonal variations in the southern provinces.

The number of patients increased slightly during the rainy months of the year

⇒ *Next research: Related with Climate change?*
4- Discussion (5)

+ **Clinical manifestations:** similar to meningitis caused by other bacteria

   Hearing loss (38.9%) occurred more often than with meningitis caused by other agents (7-10%)

   → diagnose a case of *S. suis* meningitis on admission before receiving laboratory results
5- Conclusion (1)

1- *S. suis* meningitis occurs **throughout the year**

2- **Risk of infection**: occupational exposure to pigs

3- **Hearing loss** is considered as a factor which suggests diagnosis of *S. suis* meningitis

4- **Health education**: individuals and communities at risk, focusing on skin protection in contact with pigs or pork and avoiding eating uncooked pork products
5- Conclusion (2)

5- Transdisciplinary collaboration between Medical Professionals and Veterinarians to control outbreaks of S. suis infection in pigs and humans

6- Case-control studies: to define risk factors of human S. suis infection
Thank you