

# HAEMORRHAGIC SEPTICAEMIA (HS)

## A NATNA THLEN TU

### ***A natna thlentute thenhranna***

*Pasteurella multocida*. Order: Pasteurellales. Family: Pasteurellaceae

- He natna hi bacteria chi khat *Pasteurella multocida* serotype thenkhat in an thlen a, Gram negative coccobacillus niin ran hrisel te hnar leh hrawk bul thutah natna thlen lem lovin hmuh tlanglawn a ni.
- A natna thlentute ber chu Asian serotype B:2 leh African serotype E:2 te an ni a. Classification chhuak thara 6:B leh 6:E nena inlaichin an ni.
- Serotype dang, A:1 leh A:3, te hi chuan India ramah bawng leh lawi ah HS ang deuh natna an thlen a, Pneumonia veiin an thi zui mai thin.

### ***Physical leh Chemical action Pasteurella multocida in a tawrhtheih dan***

Temperature: *P. multocida* hi temperature sang lo tak (55°C) velah pawh a thi thei.

Disinfectants: *P. multocida* te hi disinfectants kan hman lar ho hmang hian a tih thih theih deuh vek.

Survival: Ruahitui tlak tam lain southeast Asia ah chuan tui leh lei hnawngah he bacteria hi ni eng emaw zat a dam thei a ni.

## EPIDEMIOLOGY

- Haemorrhagic Septicaemia (HS) hi bawng leh lawi natna a ni ber a, natna chak tak thihpui leh kai awlsam tak a ni.
- Asia ram ah chuan HS hi ruahitui tlak tam lai (khawhnawn lai leh khaw lum lai) ah a thleng tlangpui thin.

### ***Natna tuartute (Hosts)***

- Bawng leh Lawi (*Bubalus bubalis*) in an tuar ber a, bawng aiin Lawiin an tuar nasa zawk a hriat a ni.
- HS hi kel te, beram te leh vawk ten an kai ve thei tho naa, an tuar na lovin an kai zen zen lo a ni. Sakhi, sanghawngsei, sai, sakawr, sabengtung leh yak ah te chuan an kai khat hle.
- North American ram sial (bison) te pawn an kai thei.
- Laboratory a sazupui leh sazu khawi te pawh awlsam taka experiment hmanga kai tir theih a ni.
- Mihringah chuan HS kai awm hriat ala ni lo.
- Bawng te, Lawi te leh ram sial te hi he natna reservoirs te niin a lang.

### ***Inkaichhawn theih dan***

- *P. multocida* te hi inhnaihchilh lutuk vang leh natna hrik kai thawmhnaw leh bungbel atang te in a inkaichhawn theih a.
- Bawng leh Lawi te hian chu natna hrik, damlo kachhung/hrawk atanga lo chhuak chu an lo hip luh emaw eiin emaw natna chu an lo kai thei a ni. He natna hri len fona hmunah chuan, bawng leh Lawi zaa panga (5%) tal hi chu natna vei lem lo pawha natna hrik paia pu darh thei (carriers) an ni.
- Ruahtui tlak tam hunlaiin ran hriselna chak lutuk lo te ah hrileng a hluar ber a ni.
- Ruahtui tlak tam hunlaiin, ran chakvak lovah te, chaw mumal ei lo te, hmun hnawng leh ran intlatpawlh nasat na hmunah te hian hri an inkaichhawng chak em em a ni.
- *P. multocida* hi hmun hnawng leh tuiah chuan darkar engemawzah atanga ni engemawzah thleng an dam thei a. Amaherawhchu, kar 2-3 hnuah erawh chuan lei leh thlaiah te chuan natna hrik dam tha hmuh tur an awm tawh lo thung.
- Rannung seh avanga inkaichhawn hriat ala ni lo.

### ***Natnahrik awmna/kaichhawn theihna (source) te***

- Thisen: Ran damlo thih hma lawka thisen lakah *P. multocida* natna hrik hi a awm ngei ngei lem lo.
- Hnap: He natna hrik hi ran damlo te hnapah a awm reng lem lo.

### ***A thlenna (Occurrence)***

Haemorrhagic septicaemia hi Asia, Africa, Europe a ram thenkhat leh Middle East ah te natna pawimawh tak a ni. Amaherawhchu Mexico leh Central or South America ah chuan a len thu hriat ala ni lo.

- B:2 serotype hi southern Europe, Middle East, southeast Asia, Egypt leh Sudan ah a awm a.
- E:2 serotype chu Egypt, Sudan, Republic of South Africa leh Africa ram thenkhat hmuah a ni baw.
- United States ah ram sial (bison) ah tum thum hrileng report tawh a ni a, mahse an chhehvela bawng ten an kaichhawn thu hriat a ni lo.

### ***DIAGNOSIS***

- A hrilenna hmun leh hun a zir leh a natna lanchhuah dan atang te in HS hi a hriathran theih. A hmaa hrileng lo thlen tawh atang leh vaccine pek mumal lohna atang te pawh in a rin hriat theih baw.
- Hrileng awm pheuh pheuh na hmunah chuan he natna hi hriat mai a harsa hle.
- HS a ni tih hriat theih dan awlsam chu a hri len hun a zir te (fur hunlaiin), natna thawk chak tak a nih a, ran rual zingah tam takin rang taka an lo kai a, khawsik leh taksa vung (oedematous) an lo neihin.

- A natna lanchhuah dan atang leh ran thi ruang post mortem atangin a rin hriat theih a, amaherawhchu confirm tur chuan laboratory ah a natnahrik hmuhchhuah phawt a ngai a ni.
- Natna hrik kai atanga natna lanchhuah hun (incubation period) hi ni 3-5 ani tlangpui.
- Experiment hmanga bawng leh Lawi a natna thlen chawp tirah chuan darkar reilote chhungin natna rawn langchhuak nghal in darkar 18-30 ah chuan an thi mai.
- Ran hrisel that leh that loh leh an tlatna hmun a zir – khaw awm dan leh ran vulh dan hian hri kai darh chak dan a hril hle a. Ran bit taka tlat tirna hmunah te, ran in tawphnawk leh hnawng lutuk ah te hian natna an inkaidarh chak hle.
- Ran damlo te enkawl thuai an nih loh chuan a hri kai zaa za (100%) in an thihpui thei.
- A damlo tirhte, khawsik an neih laia antibiotic hmanga enkawl vat a tha hle.
- Hri danna (vaccine) pek in thla 6-12 a veng thei.

### ***Clinical diagnosis***

- Bawng leh Lawi HS vei reng reng te hi natna thawk chak tak a ni tlangpui.
- Khawsik, nguai leh chet vel peih lohnain a natna a langchhuak hmasa thin.
- Chilthli thlah leh hnap thla duah duah an nei a, an ir bawr vel a lo vung bur a, awm bawr leh dul lamah te vung a thleng thla thuai thin ani.
- Mucous membrane a lo sen vut a.
- Thawk harsatna an nei a, darkar 6-24 chhungin an bawksawp a.
- An thih thuai loh vek pawhin ni 5 chhung emaw chu damlovin an bawksawp leh thin.
- Ran damlo natna langchhuak tawh te, a bikin Lawi, an dam khawchhuak mawh hle.
- Natna benvawn (chronic) a awm ngai meuh lo.
- Lawi hian bawng aiin an vei nasa zawk hle a, a natna lanchhuah dan pawh a nasa zawk fe a ni.
- A hrilen thanna hmunah chuan bawng la puitling chiah lovin an thihpui nasa.
- Tun hnaia hri leng atangin, Foot and Mouth disease (FMD) hri len vak na hmunah HS hri in a thual nawn duh hle a hriat a ni.
- Enkawl vat loh chuan a natna zaa za (100%) in an thihpui thei.

### ***Tisa a danglamna a thlen dan (Lesions)***

- Lu, ngawng leh awm velah vung a lo awm a.
- Tihrawl hmun hrang hrangah a vung (a chhunga tuihnang rawng engdal emaw rawng sen deuh awm) thin bawk.
- Taksa hmun hrang hrangah sen thliah thliahin, awm chung leh kawchung (thoracic leh abdominal cavity) ah tui sen ri riai alo tling thin.
- Kawchung tisa hmun hrang hrangah a lo sen thlih thliah a, taksa a be (lymph nodes) awm, a bikin hrawk bawr leh nghawng ami te a lo vungin alo sen ruih thin bawk.
- Nasa lutuk lovin chuap duk emaw pumpui leh ril vung te a awm ve thei.

### ***Natna dang HS nena ngaihpawlh theih te***

- Shipping fever
- Blackleg leh anthrax
- Acute salmonellosis, mycoplasmosis leh pneumonic pasteurellosis.

## ***Laboratory Diagnosis***

### **Sample lak dan tur**

- Ran damlo thih hma lawka thisen lakah *P. multocida* natna hrik hi a awm ngei ngei lem lova, natna hrik hi ran damlo te hnap leh taksaa tuiril awm (body fluid) ah a awm reng lem lo.
- Ran thi thar lam ah chuan, a thisen khang lova lak (heparinised/EDTA) emaw lung leh hnarkua atanga a rang thei ang bera swab lak tur a ni.
- Ran thi rei tawh ah chuan a ruh sei lai (e.g. malpui ruh) lak tur a ni.
- Ran thi ah - organ hrang hrang atanga a tisa them lak tur a ni a, a rem loh chuan a nghawnga thisenzam atangin thisen lak a, transport media hmang emaw uluk taka vur nena pack hnuah thawn tur a ni.
- A thling leh a La (spleen) lak a tha hle.
- Ran damlai ah chuan beng hmawr lak tur.

## ***Procedure***

### ***Natna hrik hmuh theih dan***

- HS natna hre tur chuan a thlentun natna hrik *P. multocida* hi thisen emaw, ran thi tawh thling atangin biochemical, serological emaw molecular methods hmangin enfiah tur a ni.
- Blood smear Gram/Leishman/Methylene blue stain hmanga enfiah hnuah natna hrik chu Gram negative, bipolar leh short bacilli angin an lang thei a ni.
- Microscope hmanga enna ringawt atang chuan finfiah theih a ni lo.
- Sample te hi laboratory a culture a enfiah theih a ni.
- Serotyping method – Rapid slide agglutination test, indirect haemagglutination test, somatic antigen agglutination test, agar gel immunodiffusion leh counter immunoelectrophoresis.
- PCR hmangin *P. multocida* hi a finfiah theih baw.

### ***Serological tests***

- Serological test hi diagnosis na atan hman a ni vak lo.

## ***PREVENTION AND CONTROL***

### ***Sanitary prophylaxis***

- Hri len fona hmunah chuan vaccine te a hun takah lak fo tur a ni.

- Ran tawt lutuk a khung khawm loh tur, a bikin khaw hnawn laiin.

### **Medical prophylaxis**

- *P. multocida* hi antibiotics kan hman thin tlanglawn te an huat tawh loh avangin Antimicrobial susceptibility test (AST) tih hmasak hnua enkawl a tha.
- Antibiotics hman atana tha te - penicillin, amoxicillin (or ampicillin), cephalothin, ceftiofur, cefquinome, streptomycin, gentamicin, spectinomycin, florfenicol, tetracycline, sulfonamides, trimethoprim/sulfamethoxazole, erythromycin, tilmicosin, enrofloxacin (or other fluoroquinolones), Amikacin and norfloxacin.

### **Vaccine hman dan**

- Inactivated vaccine: Oil adjuvant bacterin, alum bacterin
  - Oil adjuvant bacterin hian kum 1 chung a veng thei a, alum bacterin hian thla4-6 chung a veng thei a ni.
  - Bawnghnutea antibody awm hian vaccine hnathawh a ti thuanawp thei a, chuvangin hnute hne laiah chuan vaccine pek loh tur a ni.
- Life attenuated vaccines: B:3,4 strain hmanga vaccine siam
  - Thla 6 china upa ah a pek theih a, a hnarkua thun chi a ni.
  - FAO chuan Asia rama hman atan vaccine tha leh him ah a ngai a, mahse ram dangah chuan hman a ni meuh lo.

### **PUBLIC HEALTH**

- *P. multocida* B:2 leh E:2 te hi mihringah hmuh la ni lo mahse serotype dang te hian mihringah natna a thlen thei nia hriat avangin fimkhur tur a ni.

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