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Mortality pattern of large white Yorkshire pigs in an intensive farm of Mizoram

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Abstract

A study was carried out to know the causes and season wise mortality of Large White Yorkshire pigs (LWY) of Instructional livestock farm Complex, College of Veterinary Sciences and Animal Husbandry, CAU, Selesih, Aizawl, Mizoram. A total of 114 post mortem were performed in Department of Veterinary Pathology of the college from August 2012 to February 2018. The mortality pattern was recorded from weaning to adults. The causes of mortality were categorized as per the age group i.e. 0-42 days and above 42 days. Season wise mortality were also recorded. Mortality survey revealed that young piglets (0-42days) showed high mortality 63% than above 42 days age group (37%). The causes of mortality of pigs (0-42days) were enteritis (37.50%), pneumonia (36.11%), pneumonia with enteritis (6.94%), Classical swine fever (4.16%) and 1.38% of other causes i.e. diarrhea, liver abscess, general poor health with debility, hypovolemic shock, spleen rupture, fibrinous polyserositis, trauma, liver rupture, and physical wound. In other age groups (above 42days) the causes of mortality were pneumonia (41.86%), enteritis (27.90%), CSF (9.30%) and 2.32% other causes i.e. general poor health with debility, peritonitis, cardiac failure with shock and parasitic infestation. The study revealed the highest mortality rate in winter (47.36%) followed by summer (27.19%) and monsoon (25.43%). It may be concluded that the major causes of mortality in both the groups were enteritis and pneumonia in the winter season.

Keywords: mortality, large white Yorkshire, age group, season

Introduction

Pre-weaning mortality is a significant cause of loss in the pig industry. Low viability and high mortality of neonatal piglets is a major concern in pig husbandry. Compared to other species, the highest mortality (13%) occurs during the neonatal phase of the piglet's life [1]. Approx. 30% of pre-weaning mortality occurs in the first 24 hours after farrowing, 20% on 2nd, 15% on 3rd and 10% on 4th day of life, resulting in 75% of pre-weaning mortality usually occurs before the 5th day and overall 90% pre-weaning mortality occurs within the first week of age [2]. Prime factors responsible of neonatal mortality are low body energy reserves, poor birth weight, low intake of immunoglobulin immediately after birth and lack of required microclimatic condition for neonates [3]. Additional causes include overlaying and savaged, genetic abnormality and other unknown causes consist [1]. In addition to the loss of live-born piglets, 4-8% of all piglets die before or at the time of parturition [4]. These deaths (stillbirths) occur either late in gestation (antepartum) or during parturition (intrapartum) [5]. Therefore the present study was undertaken to get the information about the causes of mortality pattern as per age group and season of Large White Yorkshire pigs (LWY) in the hilly region of Mizoram.

Materials and Methods

Experimental animals

The study was carried out in livestock farm Complex, College of Veterinary Sciences and Animal Husbandry, CAU, Selesih, Aizawl, Mizoram, India. A total of 114 post mortem were performed in the Department of Veterinary Pathology, College of Veterinary Sciences and Animal Husbandry, CAU, Selesih, Aizawl, Mizoram, India from Aug 2012 to Feb 2018. The mortality pattern was recorded from weaning (42days) to adults. The causes of mortality were categorized as per the age group i.e. 0-42days and above 42days. Season wise mortality the viz. summer (March to May), monsoon (June-September) and winter (October to February) were also recorded. Aizawl has a mild, subtropical, climatic condition due to its location and elevation.

During summer temperature ranges from 20 °C to 29 °C and during winter Temperature varies from 11 °C to 21 °C. The region is influenced by monsoon, with heavy rain during May to September. The annual rainfall ranges from 2,000 mm to 2,500 mm per annum.

Results and Discussion

Mortality rate and causes of mortality in the different age group are presented in table no 1. During the study period, it was found that the age group (0-42days) revealed 63% and above 42days the age group comprises of 37% mortality respectively. Different causes of mortality of pigs in the age group (0-42)days were enteritis (37.50%), pneumonia (36.11%), pneumonia with enteritis (6.94%), Classical swine fever (4.16%) and 1.38% of other causes i.e. diarrhea, liver abscess, general poor health with debility, hypovolemic shock, spleen rupture, fibrinous polyserositis, trauma, liver rupture, and physical wound. Similar findings were reported by Mondal and his co-workers in 2013 [19]. During their study period, they have found that overall mortality in piglets as 12.18% with pre-weaning mortality as 23.16%. The highest mortality (21.69%) was noted in 0-15 day's age group, whereas, lowest mortality (1.28%) was observed in 30-45 days age group. Kalita and his co-workers in 2002 recorded the pre-weaning (up to 8 weeks) mortality rate in piglets as 24.89% and higher mortality rates were recorded in first (45.32%) and second week (26.90%), and thereafter gradually declined up to eight weeks [8]. They also mentioned that among the different causes of piglet mortality, gastroenteritis was found to be common (42.09%), followed by pneumonia (15.82%), weakness and debility (10.10%), traumatic injury (4.04%), Foot and Mouth Diseases (4.04%) and miscellaneous causes (16.51%). Hmar in 2006 also studied on the different causes of pre-weaning mortality in Hampshire piglets and reported the causes as Gastroenteritis-40.91%, Pneumonia-9.15%, Weakness, debility, and inanition-12.15%, Traumatic injury-6.32%, Foot and Mouth Disease-1.94%, Urinary Tract Infection-1.26% and others-28.28% [9].

In another age group (above 42days) the causes of mortality were pneumonia (41.86%), enteritis (27.90%), CSF (9.30%) and 2.32% other causes i.e. general poor health with debility, peritonitis, cardiac failure with shock and parasitic infestation. Yedukondalu and his co-workers in 2004 reported that the pre-weaning mortality in 50% and 75% Large White Yorkshire were 15.17% and 14.10% respectively and the majority of the pre-weaning deaths (59.76%) were observed during 0-14 days of age [10]. They also found that among the different causes of mortality, 44.41% was due to gastroenteritis, followed by Agalactia (14.33%), Haemorrhagic septicemia (9.17%), Pneumonia (8.13%) etc. The overall mortality in piglets as 12.90% with 41.66% in 1st week, 20.83% in 2nd week, 29.16% in 3rd week, 4.16% in 4th week and 4.16% in 5th week [11]. During their study period, they also observed that maximum mortality (19.48%) was in 75% Large White Yorkshire piglets followed by halfbred (9.18) and none (0.00) in desi piglets. However Roychoudhury in 1990 studied the mortality rate from birth to 8th week of age and reported overall mortality in the pre-weaning piglets as 9.3%. The various causes of mortality were : Non-infectious-50% (Debility-25%, Atresia ani-12.50%, Stampede-12.50%), Infectious-37.5% (Enteritis complex-25%, Haemorrhagic gastritis-12.50%) and Post Mortem autolysis-12.5% [12].

The study also revealed the highest mortality rate in winter (47.36%) followed by summer (27.19%) and monsoon

(25.43%). Higher piglet mortality during summer months than other seasons and during the summer higher mortality has been associated with heat stress with straw bedding, sows had a difficult time dissipating heat to the environment, which exacerbated heat stress [18]. In response to heat stress, it shows reduced feed intake. They also observed that feeding record during summer months, ADFI of sows was lower than during other seasons ($P < .05$). The reduced intake was associated with lighter litter weight at weaning, which may indicate poor milk production. Lay and his co-workers in 2002 reported that piglets weighing less than 0.80 kg at birth had a 32.00% survival rate, compared with 97.00% for piglets weighing 2.00 kg or more [15]. They also mentioned that the low birth weight piglet was particularly at risk for pre-weaning morbidity and mortality [13]. Heat stress in sows may also result in difficult farrowing, which is associated with a higher stillborn rate [14]. In the present study 0-42 days age group there was higher mortality compared to the above 42 days age group which also confirms the findings of the Gupta and his co-workers because during their study period they found overall 12.90% mortality up to the second week and later on in subsequent weeks mortality decreased rapidly [17]. Which indicates that with the advancement of age piglets developed resistance and consequently mortality decreased. Mishra in 1985 also found that the mortality was the heaviest in the first month of their age [16].

Table 1: Mortality rate and causes of mortality in the different age group

Age group	Causes of mortality	Mortality rate in percentage	Overall mortality rate in percentage
0-42 days	Enteritis	37.5%	63
	Pneumonia	36.11%	
	Pneumonia with enteritis	6.94%	
	Classical swine fever	4.16%	
	Other causes	1.38%	
Above 42 days	Pneumonia	41.86%	37
	Enteritis	27.90%	
	CSF	9.30%	
	Other causes	2.32%	

Table 2: Mortality rate and causes of mortality in different Season

Season	Causes	Mortality rate in percentage	Overall mortality in percentage
Summer	Pneumonia	35.28	27.19
	Enteritis	19.6	
	CSF	5.88	
	others	39.24	
Monsoon	enteritis	21.56	25.43
	pneumonia	17.64	
	CSF	11.76	
	others	49.04	
Winter	Enteritis	45.08	47.36
	pneumonia	39.2	
	CSF	7.84	
	others	7.88	

Conclusions

It may be concluded that the major causes of mortality in both the groups were enteritis and pneumonia in the winter season. This study will help to prevent mortality by taking advance preventive strategy.

References

1. Varley MA. The Neonatal Pig Development and Survival, CAB International Wallington, UK 1995, 1-16.
2. Glastonbury JR. A survey of preweaning mortality in the pig, Aust. Vet J 1976;52(6):272-276.
3. Le Dividich J, Rooke J A, Herpin P. Nutritional and immunological importance of colostrum for the new-born pig. J Agric Sci 2005;143(6), 469-485.
4. English PR, Morrison V. Causes and prevention of piglet mortality. Pig News and Information 1984;5:369-376.
5. Bille N, Nielson NC, Larsen JL, Svendsen J. Preweaning mortality in pigs. II. The perinatal period. Nordisk Veterinaermedicin 1974;26:294-313
6. National Research Council (NRC). Nutr. Require. of Swine. 10th revised edition, subcommittee on Animal Nutrition, Board of Agriculture, NRC, National Academy Pres-2101 Constitution Avenue, NW-Washington., DC.20418, USA 1998.
7. Musniati N, Sartika RAD. The existence of livestock as a dominant risk factor of pneumonia among Indonesian children aged 12-59 months. Int. J Agric. Extension Social. Dev. 2019;2(1):07-10. DOI: 10.33545/26180723.2019.v2.i1a.16
8. Kalita G, Roychoudhury R, Goswami RN. Causes of Pre-Weaning mortality in piglets. Indian Vet. J 2002;79(1):72-73.
9. Hmar L. Pre-weaning mortality in Hampshire pigs. Indian Vet. J. 2006;83(1):90-91.
10. Yedukondalu R, Rao DS, Ravi A. An analysis of mortality in crossbred pigs. Indian Vet. J 2004;81(10):1171-1173.
11. Gupta RK, Singh VP, Belsare VP. Growth pattern and mortality in pre-weaning crossbred pigs. Indian J Anim. Res 2001;35(2):96-99.
12. Roychoudhury R. Some managerial aspects of pre-weaning piglets. Ph.D. Thesis, College of Veterinary Science, Assam Agricultural University, Khanapara, Guwahati-22, Assam 1990.
13. McNamara JP, Pettigrew JE. Protein and fat utilization in lactating sows: I. Effects on milk production and body composition. J Anim Sci 2002;80:2442-2451.
14. Sprecher DJ, Leman AD, Dziuk PD, Cropper M, DeDecker M. Causes and control of swine stillborns. JAVMA 1974;165:698-701.
15. Lay Jr DC, Matteri RL, Carroll JA, Fangman TJ, Safranski TJ. Pre-weaning survival in swine. J Anim. Sci 2002;80:74-86.
16. Mishra M. Indian J. Anim. Prod. Mgnt. 1985;1(1):41-44.
17. Gupta RK, Singh VP, Belsare VP. Growth pattern and mortality in pre-weaning crossbred pigs, Indian J Anim. Res 2001;35(2):96-99.
18. Li Y, Johnston L, Hilbrands A. Pre-weaning mortality of piglets in a bedded group-farrowing system. Journal of Swine Health and Production 2010;18(2):75-80.
19. Mondal SK, De UK, Das GK, Powde AM, Verma AK. Pattern of mortality of crossbred pigs in an organized swine production farm. J Livestock Sci. (ISSN online) (22776214) 2013;3:37-44.