

Incidence of foot and mouth disease at polyclinics of SKUAST- Kashmir

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Abstract : The incidence of FMD was studied at the polyclinics of SKUAST Kashmir during 1997-2002. A total of 10870 cases were presented at the polyclinics during the reported period. 570 cases were affected with the disease *i.e.* 5.24 per cent cases of FMD were present. Lowest incidence was recorded during the year 1998-99 (0.58%) while highest incidence of 19.6 per cent was recorded in the year 2000-01. Season wise highest incidence was reported during summer and species wise cattle were found to be highly susceptible.

Key words : Affected, FMD, Incidence, Polyclinics, Susceptible

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INTRODUCTION

Foot and mouth disease is an extremely contagious disease of all cloven-footed animals, characterized by fever and vesicles on mouth, feet and teats. Because of the trade sanctions that are imposed on countries in which it occurs and the loss in production by affected animals, FMD is one of the world's most important animal diseases. The causal agent belongs to "picorna" virus group having the size of 8-10 μ m. An occult form of the disease with insignificant lesion having little tendency to spread has been reported (Falconer, 1972). The devastating economic losses caused by FMD are due to death of young animals, marked reduction in milk production, abortion at an advanced stage of pregnancy and reduced working ability of the animals (Singh, 2003) along with reduced quality and quantity of meat, reduction in fertility, loss of quality of semen in breeding bulls and loss of productivity for a considerably longer time (Yadav, 2003). FMD causes milk losses of approximately 3508 million litres per year, about 8.5 per cent of total annual milk production (Gelaye *et al.*, 2009).

The disease is caused by aphthovirus of family picornaviridae. The virus occurs as seven major serotypes *viz.*, A,O,C, SAT-1, SAT-2, SAT-3 and Asia-1. However, there are a number of immunologically and serologically distinct sub types with different degrees of virulence within each of these strains and the virus seems to be capable of infinite mutations so that new, antigenically different, sub types are constantly appearing, about 80 of these have been identified. Due to lack of cross-immunity between serotypes immunity to one type does not confer protection against any of the other six types.

RESEARCH METHODOLOGY

Clinical records maintained at polyclinics Shuhama (F.V.Sc and A.H) were screened from 1997-2002 and data

collected and analysed to evaluate the incidence of FMD in cattle, sheep and goat during different years. Also season wise pattern of the disease was evaluated from 1997-2002 for all the three species together.

RESULTS AND DISCUSSION

During the period 1997-2002 a total of 10870 cases were presented at polyclinics-Shuhama including 570 (5.24%) cases of FMD. Species-wise yearly pattern of FMD is given in Table 1. The incidence of FMD during different years was quite variable with highest number of cases being recorded in any of the species during the year 2000-2001. In general incidence was recorded less during the year 1998-1999 (0.58%) (Fig. 1). Highest number of cases in any of the year were recorded in cattle followed by sheep and goat in that order.

Seasonal pattern of the disease as evaluated for cattle, sheep and goat taken together for the five years (1997-2002) has been presented in the Table 2. Highest incidence was recorded during summer followed by winter and

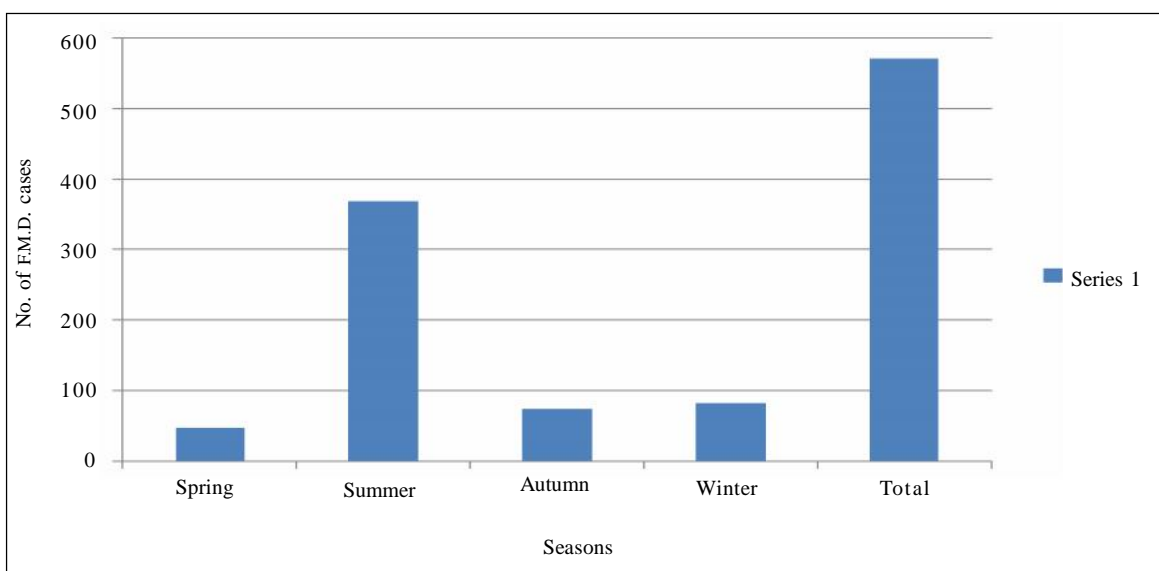


Fig. 1 : Pattern of FMD in cattle, sheep and goat (1997-2002)

Table 1: Yearly pattern of FMD in cattle, sheep and goat from 1997-2002 in polyclinics Shuhama

Year	Total no. of cases	No. of FMD cases			Total no. of FMD cases	Per cent incidence
		Cattle	Sheep	Goat		
1997-98	1500	120	50	10	180	(12%)
1998-99	5000	22	5	2	29	(0.58%)
1999-2000	1900	100	19	6	125	(6.5%)
2000-01	1200	170	60	6	236	(19.6%)
2001-02	1270	Nil	Nil	Nil	Nil	Nil
Total	10870	412	134	24	570	

- 12% FMD incidence in livestock in year 1997-98
- 6.5% FMD incidence in livestock in year 1999-2000
- 0% FMD incidence in livestock in year 2001-02
- 0.58% FMD incidence in livestock in year 1998-99
- 19.6% FMD incidence in livestock in year 2000-01

Table 2 : Seasonal pattern of FMD from 1997-2002 in polyclinics Shuhama

Total no. of FMD cases	No. of FMD cases in			
	Spring	Summer	Autumn	Winter
570	46(8%)	368(64.5%)	74(12.9%)	82(14.3%)

8% FMD Incidence in spring 64.5% FMD Incidence in summer 2.9% FMD Incidence in autumn 14.3% FMD Incidence in winter

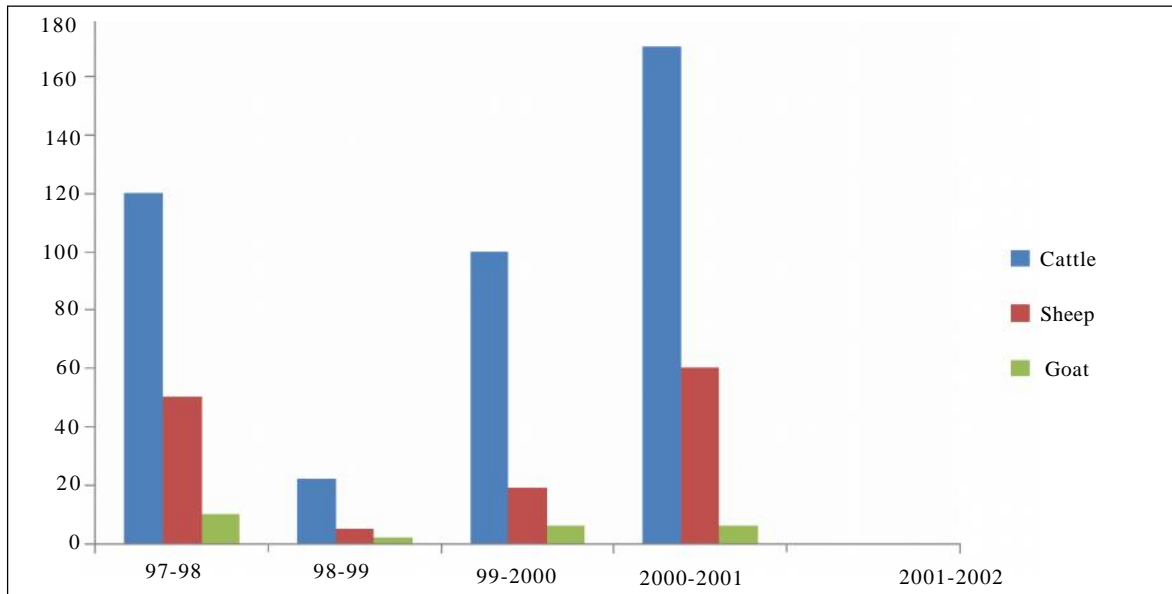


Fig. 2 : Number of cases in cattle, sheep and goat (1997-2002)

Table 3 : Seasonal incidence recorded during 1997-2002

Factor	Cattle	Sheep	Goat	Total
Period (1-5)	412	134	24	570
Season	-	-	-	-
Spring	33	11	2	46
Summer	266	87	15	368
Autumn	54	17	3	74
Winter	59	19	4	82
Total	412	134	24	570

The incidence is significantly higher in summer season.

autumn and least in spring. Also adult animals (cattle > 2 years, sheep and goat > 1 year) appeared to be more commonly affected (Fig. 2 and Table 3).

Present study revealed a variable incidence of FMD during the five years. Since not all the animals in the area were affected, the prevalence of disease in the area may not be attributed to either not all the animals being vaccinated, improper vaccination, under dose or other stress factors. It has been recommended that vaccination of all the animals in area should be done at one time. Also there is no restriction/regulation of immigration of animals. Thus, the introduction of affected or non-vaccinated animals in the area also constitute risk factors. Absence of the disease during the year 1998-1999 may be attributed to the immunity acquired from the disease during previous years. Recorded animals have been found to be immune to the homologous virus strain.

Cattle are found to be more susceptible to the disease and our findings were consistent with the same. It has been suggested that cattle serve as indicator, sheep as maintenance and pigs as amplifier hosts (Seller and Parker, 1969). It may be due to introduction of extensive exotic cattle blood and cross breeding which leads to high susceptibility of cattle towards FMD (Zulfiqar, 2003). The significantly higher seroprevalence of FMD in young and adult animals observed in the current study is in agreement with the previous reports of Gelaye *et al.* (2009); Megersa *et al.* (2009) and Mohamoud *et al.* (2011) in Ethiopia, Chepkwony *et al.* (2012) in Kenya. On the other hand (Esayas *et al.*, 2009) done their research in Bench Maji zone of southern Ethiopia documented no significant association between seropositivity of FMD and age of cattle. The low seroprevalence of FMD recorded in young calves could be

associated with low frequency of exposure to disease. In addition, farmers keep their young calves near homestead and away from the grazing adult animals (Thrusfield, 2007). The absence of pigs in the area under consideration although restricts the disease at low profile, yet no relaxation on part of management and prophylaxis can be adopted and all the three species of animals need to be vaccinated in time.

The higher incidence of disease during summer reflects the favourable temperature in the temperature zone during the period as well as greater possible contact with sub-clinically or clinically affected animals at the pastures during the period. Humidity of the environment was reported to be the important factor for the spread of the virus (Blood *et al.*, 1979).

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