

Prevalence and Seasonality of Fowl Typhoid in Kashmir Valley

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A two year study (2008 to 2010) on the prevalence of fowl typhoid (FT) was conducted in different outbreaks of commercial poultry farms in Srinagar district and its adjoining areas. A prevalence rate of 8.8% (44 cases) was recorded for FT out of 500 cases. The highest number of outbreaks (21) of FT was recorded during the winter season (December - Feb) followed by (10) spring (Mar to May), 8 Autumn (Sep to Nov) and 5 Summer (June to Aug). 21 cases (47.72%) of FT were recorded in birds of age group less than 5 weeks. Outbreaks of FT were closely associated with age, type and season ($P < 0.05$). FT was more likely to occur in young broiler birds of 1-5week and > 15 wks age group layers. It was concluded from the study that FT is common problem in the broiler chickens and layers however broiler chickens are more susceptible to the disease in Kashmir valley. This study recommends that poultry farmers should be encouraged to practice prompt and regular monitoring of broilers against fowl typhoid disease.

Key words : Fowl typhoid, Poultry farms, Kashmir.

Fowl typhoid is a long term nemesis of Indian poultry industry causing heavy economic losses due to mortality in young and adult chicken. Ever since its first report by Cooper and Naik, (1931) the incidence of fowl typhoid is on increasing trend, which is evident from the fact *Salmonella Gallinarum* alone accounted for 32% and 49% of *Salmonella* of avian origin typed at National Salmonella Centre (Vety), Izatnagar (UP, India) during 1987 to 1995 (Gupta and Verma, 1997)

and at National Salmonella and Escherichia Centre, Kasauli (HP) during 1972 to 1982 (Saxena *et al.* 1983) respectively. The aim of this study was to study the prevalence of FT cases and other non-FT poultry diseases in various commercial broiler and layer farms in Srinagar district (and its adjoining areas) and to determine if any association exists between prevalence of the disease and factors of the host and environment for example, Age, types of bird and season of the year.

MATERIAL AND METHODS

Study area

This area is located in north-east of Kashmir valley situated between 34.7° to 34.22° N latitude and 74.4 to 74.56°E longitude with an average altitude of 5100 ft. above sea level. Climatologically, winters are extremely cold (2 to

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10°C) with heavy snowfalls while as summers are pleasant (33°C).

Isolation

Salmonella was isolated according to standard methods (ISO 6579, 1993). Briefly one gram sample (Intestine, gall bladder, spleen and heart) was aseptically added to 9ml of buffered peptone water (Pre-enrichment media) and incubated for 18hr at 37°C. 0.1ml of pre-enriched cultures were then transferred to Selenite broth F and incubated at 42°C. The culture from each of the enriched broths was streaked onto plates of Xylose Lysine deoxycholate (XLD) agar and *Salmonella Shigella* (SS) agar and incubated at 37°C for 24 hours. The plates were examined for the presence of typical colonies of *Salmonella*, i.e transparent colonies with black centre on *Salmonella Shigella* (SS) agar and red colonies without black centre on XLD agar (Anntunes *et al* 2003). Suspected colonies were confirmed positive by conventional biochemical methods (Lautrop *et al* 1979). Serotyping of *Salmonella* isolates was done at "National Salmonella and Escherichia Coli Central Research Institute", Kasauli, HP.

Data collection

Information on FT was extracted from the clinic cases from January 2008 to December 2009

and the non-FT cases were considered together as a group. The age of the birds were categorized as follows; (i) 1-5 weeks, (ii) 6-10 weeks, (iii) 11-15 weeks, (iv) >15 weeks. The seasons in Srinagar and environ were categorized as follows: (i) Winter season (December - February). (ii) Spring (March - May) (iii) Summer (June-August) (iv) Autumn (September –November). The data were analyzed statistically using SPSS computer based programs.

RESULTS AND DISCUSSION

A total of 500 cases of poultry disease were investigated with 44 (8.8%) of the diseases diagnosed positive for FT. The prevalence rate of 8.8% of FT observed in the present study was higher than prevalence reported from the rest of states as 7% from M.P (Shivare *et al.* 2001), 4.21% in Assam, Arunachal Pradesh, Meghalaya (Bhattacharya *et al.* 2004). This may be attributed to the temperate climatic conditions prevailing in Kashmir valley in comparison to sub-tropical and tropical conditions in rest of states of India. The month specific rate (MSR) for FT was highest in January (13.23%) and lowest in July (4.54) as shown in Fig. 1.

Table 1. Seasonal distribution of FT and other poultry diseases in Srinagar, Kashmir

Season	FT cases	Non FT cases	Season specific rate (%)
*Winter season(Dec - Feb)	21	151	12.20
Spring (March - May)	10	118	7.81
Summer(June-Aug)	5	76	6.02
Autumn (Sept –Nov)	8	111	7.20
Total	44	456	

*significant at $p < 0.05$.

Table 2. Age wise distribution of FT and other poultry diseases in Srinagar, Kashmir

Age group (weeks)	FT cases	Non FT cases	Age specific rate (%)
*1-5	21	146	12.57
6-10	3	97	3.0
11-15	4	108	3.57
*>15	16	125	11.34
Total	44	456	

*significant at $p < 0.05$.

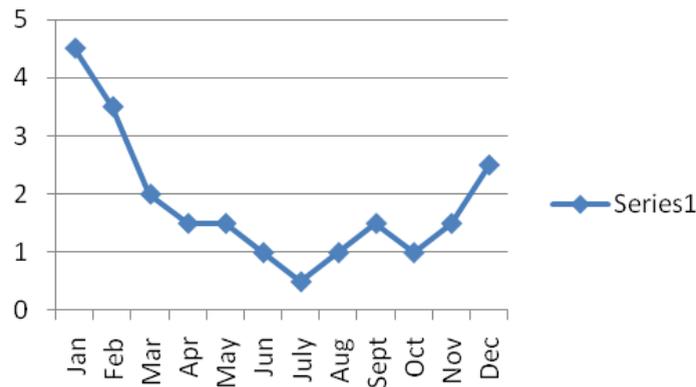


Fig. 1. Monthly distribution of fowl typhoid in Srinagar, Kashmir

This means that FT was more likely to occur in the winter (Dec - Feb). It is important to note that these months fall within the rainy season in most parts of Kashmir valley including the study area. Roa (2000) also reported that outbreaks of FT were more common in wet weather and high moisture conditions in the air.

The age specific rate of FT showed that birds 1-5 weeks had the highest rate (12.57%), followed by birds of >15wks (11.34%) and 11-15 wks age (3.57%). This means that FT was more likely to occur in young broiler birds of 1-5 week and > 15wks age group in layers (Table 2). Mahajan *et al.* (1994) also observed high prevalence and mortality in chicks due to fowl typhoid during the period from July 1987 to June 1990 in Haryana.

It is also important to note that infected chicks remain carriers of the disease (Falade and Ehizokhale, 1981) and any stress may trigger an outbreak of FT (Aiello, 1998). The chicken type specific rate for FT showed that broilers had the highest prevalence rate of 17.14% followed by layers 5.5%. This means that FT was more likely to occur in broilers as compared to layers. This may be due to the fact that most commercial farmers in Kashmir do not vaccinate them against FT.

In conclusion it was observed that FT had a wide prevalence in commercial broiler and layer farms in Kashmir valley and improvements are needed in fowl typhoid control program because those currently adopted have not been able to prevent the disease on poultry farms

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