

## Short Communication

# Effect of Dilution and Route of Ivermectin on Lice Infested Domestic Pigeons

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## ABSTRACT

A total of 300 pigeons were examined to study the lice infestation pattern in domestic pigeons in different localities of Lahore (pigeon owners and aviaries). Out of 300 birds examined, 271 birds revealed an overall incidence of 90.33% of lice infestation. The efficacy of ivermectin was determined on the basis of reduced number of lice from the body of pigeons in group A, B and C. Group D served as untreated infested and group E served as healthy control. Efficacy of ivermectin was 91.66%, 75% and 83.33% in group, A, B and C, respectively. Birds of group A were treated with ivermectin 0.1 mg/kg body weight undiluted subcutaneously. The pigeons of group B were treated with ivermectin 0.1 mg/kg BW diluted with normal saline at dilution 1:10 given subcutaneously. The birds of group C were given ivermectin @ 0.1 mg/kg BW at dilution 1:10 intramuscularly. Blood parameters studied were: haemoglobin estimation and differential leukocytic count. The result of haematological examination showed a significant increase in haemoglobin level of birds treated with ivermectin. There was a significant decrease in differential leukocytic count of treated birds.

**Key Words:** Ivermectin; Lice; Pigeon

## INTRODUCTION

Many diseases of pigeons produce economic losses by reducing production and high mortality. Lice infestation is a problem of universal importance in poultry production. It results in anaemia, lower reproductive potential in males, decreased egg production in females, decreased weight gain in growing birds, transmission of certain pathogens and even high mortality in heavy infestations (Soulsby, 1982).

This paper describes (i) the prevalence of lice infestation in domestic pigeon, (ii) effectiveness of ivermectin against lice infestation and (iii) the effect of lice infestation on certain blood parameters of the pigeons

## MATERIALS AND METHODS

Three hundred pigeons were examined for the prevalence of lice infestation in different localities of Lahore (pigeon owners and aviaries). Before introducing the pigeons to the experimental shed, the shed was fumigated with formaline and potassium permanganate and disinfected by spraying Bectol plus; solution (Well Pharmaceuticals, Lahore–Pakistan).

Sixty pigeons were divided into five groups i.e. A, B, C, D and E (12 pigeons in each) (Birds of group A were treated with ivermectin (Merial, Pakistan) 0.1 mg/Kg body weight (Roberson, 1988) undiluted subcutaneously. The pigeons of group B were treated with

ivermectin 0.1 mg/Kg BW diluted with normal saline at dilution 1:10 given subcutaneously. The birds of group C were given ivermectin @ 0.1 mg/kg BW at dilution 1:10 intramuscularly while group D was kept as positive control and group E as negative control. The pigeons were examined with the help of magnifying glass under a light source. Examination of feathers particularly around the vent and under the wings revealed moving lice on the skin or feathers. The birds were examined for the presence of lice on day zero before medication, and days 3, 7 and 10 post-medication. Efficacy of the drug was determined on the basis of reduction in the appearance of lice on the body of the pigeons.

Lice were collected during the examination of the infested birds, and preserved in 70% alcohol. The permanent mounts of collected lice were prepared to identify the species of lice by using standard technique (Soulsby, 1982). Haematological examination was done on day zero before medication, and day 3, 7 and 12 post-medication of all the groups. Parameters studied were: Haemoglobin estimation (Coles, 1986) and differential leukocytic (Benjamin, 1978).

## RESULTS AND DISCUSSION

**Prevalence.** The prevalence of lice infestation was found to be 90.33% (Table I). Only one species of lice i.e., *Columbicola columbae* was recorded. Similar results have

**Table I. Area wise percentages of lice infestation in domestic pigeons in different localities of Lahore. (n = 300)**

Localities	No. of birds Examined	Birds Infested With Lice	Birds Free From Lice	Percentage of Infestation
Islampura area	100	87	13	87
Bilal Gunj area	100	93	7	93
Tollinton Market	100	91	9	91
Total	300	271	29	90.33

been reported by other workers from different geographic regions (Hashmi, 1971; Gammaz, 1990; Dranzo *et al.*, 1999).

**Treatment.** Significant decrease in the appearance of lice in group A (drug efficacy 91.66%), B (drug efficacy 75.00%) and C (drug efficacy 83.33%) was recorded as compared to group E (untreated control). Reduction in lice started from day 3 onward post medication. It was observed that ivermectin when used undiluted as S/C injection showed maximum efficacy. No side effects were observed in any bird of any group. The results revealed that ivermectin was almost as effective as reported by previous workers (Borriro, 1982; Camphell & Benz, 1984; Mousa *et al.*, 1986; Salisch, 1989).

**Haemoglobin estimation.** On day zero, it was 7.06, 7.09, 7.05, 7.07 and 12.04 g/dL in group A, B, C, D and E, respectively. After the treatment on day 10 it increased up to 11.70, 11.66 and 11.61 g/dL in group A, B and C, respectively, while in group D it was 6.78 g/dL and in group E it remained 12.04 g/dL. Masood (1991) also reported the similar findings.

**Heterophils.** On day zero, it was 5626, 5663, 5661, 5659 and 4308/ $\mu$ L in group A, B, C, D and E respectively. After the treatment on day 10 it decreased up to 4507, 4512, 4509/ $\mu$ L in group A, B and C respectively, while in group D it was 5802/ $\mu$ L and in group E it remained 4308/ $\mu$ L. These results are in accordance with the results of studies conducted by Sehkar and Sinha (1986). Findings of Irfan (2000) are also congruent to the findings of present study.

**Lymphocytes.** On day zero, it was 5204, 5205, 5200, 5205 and 1920/ $\mu$ L in group A, B, C, D and E, respectively. After the treatment on day 10, it decreased up to 2213, 2220, 2216/ $\mu$ L in group A, B and C, respectively, while in group D it was 5404/ $\mu$ L and in group E it remained 1920/ $\mu$ L. These results resemble with the results of studies conducted by Sehkar and Sinha (1986) and Irfan (2000). They reported decrease in lymphocyte count after the treatment of birds.

**Monocytes.** On day zero, it was 161.00, 160.25, 160.83, 160.58 and 66.33/ $\mu$ L in groups A, B, C, D, and E, respectively decreased to 71.00, 71.50, 71.25/ $\mu$ L in group A, B and C, respectively, while in group D it was 162.50/ $\mu$ L and in group E it remained 66.33/ $\mu$ L. These results are comparable with the results obtained by Sehkar and Sinha (1986) and Irfan (2000).

**Eosinophils.** On day zero, it was 140.60, 140.50, 140.30, 140.50 and 44.25/ $\mu$ L in group A, B, C, D and E, respectively. After the treatment on day 10, it decreased up to 53.08 54.00, 53.08/ $\mu$ L in group A, B and C remained 44.25/ $\mu$ L. These results are in accordance with studies conducted by Sehkar and Sinha (1986) and Irfan (2000).

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