Study on small ruminant lungworms and associated risk factors in northeastern Iran

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ABSTRACT
Objective: To determine the prevalence, identify the species involved and assess possible risk factors of lungworm infection in small ruminant slaughtered in abattoir of Mashhad in the northeast of Iran from October 2010 - August 2011. Methods: Faecal and post mortem examination were conducted on 350 and 2500 animals, respectively. Results: The overall prevalence of lungworm infection was 10.85% and 3.80% in coproscopic and post mortem examination respectively, and this difference was found to be significant. Higher prevalence of lungworm infection was recorded in post mortem examination in sheep (4.1%) than in goats (0.5%) (P< 0.05). The proportion of infection with Dictyocaulus filaria, Protostrongylus rufescens and mixed infection were 3.7%, 0.1% and 0.2% in sheep while in goats, the infection was reported with Dictyocaulus filaria (0.5%) only. The seasonal dynamics of lungworm infection showed that prevalence was highest in winter (7.8%) with a remarkable decline during the dry time (summer) (0.8%) which the difference was significant (P<0.001). The animals of less than one year old showed greater infection in post mortem examination than older animals significantly (P<0.001). Also, the infection rate between male and female animals showed significant difference (P<0.05) with prevalence rate to 4.6% and 2.0%, respectively. Conclusions: Due to its impact on production, emphasis should be given for the control and prevention of lungworm infection in this area.

1. Introduction

Small ruminants are considered as one of the most important sources of milk and meat production in Iran. Moreover, these animals play important role in the rural economy and enable the country to earn substantial amount of foreign currency through export of skins and other by-products. Helminth parasites of ruminants are ubiquitous, and many tropical and sub-tropical environments in the world provide nearly perfect conditions for their survival and development. Although these parasites are widely prevalent, the clinical signs of infected animals can be less obvious than signs of other livestock diseases.

Lungworms can result in infection of the lower respiratory tract, usually resulting in verminous bronchitis or verminous pneumonia. Now, bronchopneumonia is one of the most important ovine diseases in Iran which is due to bacteria, viruses and parasites. In the ruminants, pulmonary worms are the most prevalent cause of this disease. Pulmonary parasites of small ruminants cause significantly economical losses with mortality and production reduction.

Control of these parasites is therefore essential for increasing small ruminant production. For proper implementation of control measures, knowledge of parasitic diseases and their dynamics must be studied. The available information about pulmonary worms in Iran is just of the investigation based on slaughterhouse observation with limited numbers of small ruminants. The incidence of parasitic diseases, including respiratory helminthosis varies greatly from place to place depending on the relative importance of factors involved. The present study was to estimate the prevalence of lung worm infection and to assess the associated risk factors in Mashhad, northeast of Iran.