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Book of Abstracts

O-4033**Further Insights into Monepantel Pharmacology to Optimise its Anthelmintic Performance in Cattle**

Candela Canton, Lucila Canton, Adrian Lifschitz, Paula Dominguez, Juan Torres, Carlos Lanusse, Luis Alvarez, Laura Ceballos, Mariana Ballent

Laboratorio de Farmacología, Centro de Investigación Veterinaria de Tandil (CIVETAN), UNCPBA-CICPBA-CONICET, Facultad de Ciencias Veterinarias, UNCPBA, Tandil, Argentina

Abstract

The work described here complements previous findings on monepantel (MNP) pharmacological behaviour in cattle. MNP was given alone or co-administered with macrocyclic lactones or benzimidazoles to calves naturally infected with gastrointestinal nematodes (GIN) resistant to ivermectin (IVM) in two commercial cattle farms. Both pharmacokinetic and efficacy assessments were performed. In Farm A, two groups (n= 15) of male calves were treated with either MNP orally (2.5 mg/kg) or IVM subcutaneously (sc, 0.2 mg/kg). In Farm B, eight groups (n=15) of male calves were treated with MNP, IVM, abamectin (ABA, oral, 0.2 mg/kg), ricobendazole (RBZ, sc, 3.75 mg/kg), albendazole (ABZ, oral, 5 mg/kg), MNP+ABA, MNP+RBZ and MNP+ABZ (all at the mentioned doses). Seven animals from MNP treated group (Farm A) were randomly selected to perform the PK study. MNP and its metabolite monepantel sulphone (MNPSO₂) were the main analytes recovered in plasma. Higher C_{max} and AUC values were obtained for the active MNPSO₂ metabolite compared to MNP. Efficacies of 99% (Farm A) and 96% (Farm B) demonstrated the high efficacy of MNP (P< 0.05) against GIN resistant to IVM in cattle. While IVM failed to control *Haemonchus* spp. and *Cooperia* spp., MNP achieved 100% efficacy against *Haemonchus* spp., *Cooperia* spp. and *Ostertagia* spp. on both farms. However, in both farms MNP failed to control *Oesophagostomum* spp. (efficacies ranging from 22 to 74%). While the combination MNP+ABA achieved an efficacy of 99% against this genus (Farm B), the combined treatments MNP+ABZ and MNP+RBZ shown a 100% reduction against all genera. In conclusion, the oral treatment with MNP should be considered for dealing with IVM resistant parasites in cattle. Moreover, the use of MNP in combination with benzimidazoles could be a valid strategy for improving its poor efficacy against *Oesophagostomum* spp. and thus extending its lifespan.

Presenting author biography

I graduated from the School of Veterinary Medicine at Universidad Nacional del Centro, Tandil, Argentina. Since my graduation, I have started a PhD program, supported by a fellowship from the Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET). I completed my doctoral training in 2018 and currently, I work as a CONICET researcher. The main goal of my research is to study different pharmaco-parasitological approaches with particular emphasis on the assessment of anthelmintic drug

combinations in cattle. I aspire to transfer and apply all my knowledge to the productive sector, in order to optimize the parasitic control in animal production.