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Assessment of novel vaccines against *F. hepatica* in sheep by gross and histopathology

Diana María Barrero Torres[1], Guillem Herrera Torres[1], María Teresa Ruiz Campillo[1], Verónica María Molina Hernández[1], Elora Valderas García[2], Javier Martínez Moreno[2], Rafael Zafra[2], Leandro Buffoni[2], Pablo José Rufino Moya[2], José Pérez[1].

1. Departamento de Anatomía y Anatomía Patológica Comparadas y Toxicología, UIC Zoonosis y Enfermedades Emergentes ENZOEM, Universidad de Córdoba, España.
2. Departamento de Sanidad Animal, Unidad Parasitología, UIC Zoonosis y Enfermedades Emergentes ENZOEM, Universidad de Córdoba, España

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Afiliación/Affiliation: Departamento de Anatomía y Anatomía Patológica Comparadas y Toxicología, UIC Zoonosis y Enfermedades Emergentes ENZOEM, Universidad de Córdoba, España.

Introducción y Objetivo/Background and objectives

Fasciola hepatica causes fasciolosis, an important zoonosis around the world, leading serious public health problems in endemic areas. Current increasing anthelmintic resistance has led to the design of vaccine protocols. Despite some promising results, to date a consistent effective vaccine has not yet been reached, so new approaches should be investigated. In this work a cocktail of new antigens and commercial adjuvants have been assessed. The reduction of the hepatic lesions in the vaccinated sheep is mandatory.

Métodos/Methods

Six-month-old sheep (n=50) were divided into five groups. Groups 1, 2 and 3 (n=10) were immunised twice four weeks apart using the same protein cocktail (legumain, cathepsin B3 and serpin-1) and three different commercial adjuvants. Then, sheep were orally infected with 150 metacercariae. Group 4 (n=10) included the infected controls and group 5 (n=10) the negative controls. At 18 weeks post infection (wpi) all animals were culled for the assessment of gross and histopathology of livers using a semi-quantitative score of severity.

Resultados/Results

Gross lesions such as migratory tracts, atrophy of the left hepatic lobe and enlargement of the bile ducts were slightly reduced in the vaccinated groups (1 and 2) compared to the infected control group, being the reduction of atrophy statistically significant. Microscopically, a milder severity was found in cholangiolar hyperplasia, fibrous perihepatitis, chronic tracts and lymphoplasmacytic infiltrate together with an equally mild increase in granulomas and globular leukocytes in the vaccinated groups (1, 2 and 3) compared to the infected control group.

Conclusión y Relevancia/Conclusions and relevance

This new vaccine formulations including a cocktail of proteins (legumain, cathepsin B3 and serpin-1) and three different commercial adjuvants show mild reductions in hepatic lesions in *F. hepatica*-infected sheep leading the next step for the performance of further assays to deep into the molecular scenario exerted in the interface parasite-host.