



S02 OP-04 | Lorenzo E. Hernández Castellano | Spain | lorenzo.hernandez@ulpgc.es

Effect of intramammary administration of lipopolysaccharides on dairy goats at parturition on blood, colostrum, and mature milk immunoglobulin G concentration

Marta González-Cabrera¹, Okri Fréjus Hans Ouhoko^{1,2}, Mario Salomone-Caballero¹, Noemí Castro¹, Anastasio Argüello¹, Lorenzo E. Hernández-Castellano¹

¹Animal Production and Biotechnology group, Institute of Animal Health and Food Safety, Universidad de Las Palmas de Gran Canaria, 35413 Arucas, Spain

² Research Unit in Applied Microbiology and Pharmacology of Natural Substances, Polytechnic School of Abomey-Calavi, University of Abomey-Calavi, 01 PO Box 2009 Cotonou, Benin

In newborn ruminants, passive immune transfer (PIT) is essential to obtain protection against pathogens. This study aimed to increase the permeability of the blood-milk barrier using intramammary lipopolysaccharides (LPS) in goats at parturition to increase IgG concentration in colostrum and mature milk. Twenty healthy dairy goats were randomly allocated in one of the two experimental groups. At parturition, goat kids were immediately removed from dams and were not allowed to suck colostrum. The TRT group (n=10) received an intramammary administration (IA) at parturition of saline solution (2mL) containing 50 µg of LPS from *Escherichia coli* (O55:B5) per gland. The CON group (n=10) received an IA of saline (2mL per gland) without LPS. Blood samples were collected from the jugular vein using EDTA tubes at parturition (d0; before IA), and then at 3h, 12h as well as d2, d2, d4, d7, d15 and d30 relative to IA. Colostrum samples were collected at 3h and 12h relative to IA. Milk samples were collected on d4, d7, d15 and d30. Immunoglobulin G concentrations were measured using an ELISA commercial kit (Bethyl Laboratories, Montgomery, TX, USA). Data was analysed using the MIXED procedure from SAS (9.4). The model included the IA (TRT vs. CON), time (T) and the interaction between both (IA×T) as fixed effects. Blood IgG concentrations in the TRT group were higher than in the CON group (4.5±0.26 and 3.7±0.21 mg/mL, respectively; P_{IA} = 0.022). In addition, goats from the TRT group showed higher IgG concentrations on colostrum compared with the CON group (44.2±5.73 and 28.8±4.91 mg/mL, respectively; P_{IA} = 0.034). No differences on mature milk IgG concentrations were detected between TRT and CON group (1.0±0.15 and 0.8±0.14 mg/mL, respectively; P_{IA} = 0.281). In conclusion, intramammary administration of LPS increases colostrum IgG concentrations and may enhance passive immune transfer to the offspring.

Acknowledgements

This study was funded by ProID2021010035 ACIISI/FEDER, UE.