1. Sodium Dodecyl Sulphate-Agarose Gel Electrophoresis (SDS-AGE) as a Tool for Monitoring the Pattern of Proteinuria in Dogs with Leishmaniasis

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Dogs with leishmaniasis develop an immune-complex glomerulonephritis that suddenly induces functional or structural lesions in tubular cells. Leishmanicidal treatments should decrease immuno-complex formation and deposition. This can modify the composition of urinary proteins over time.

The aim of this study was to assess whether sodium dodecyl sulphate-agarose gel electrophoresis (SDS-AGE), which differentiates urinary proteins based on their molecular weight (MW), may identify changes in the composition of urinary proteins associated with leishmanicidal treatments.

Urine samples from 11 leishmaniotic dogs in IRIS stage I that were proteinuric (n = 10) or borderline proteinuric (n = 1) were collected before treatment and 2, 4 and 6 weeks after the beginning of treatment with meglumine antimoniate and allopurinol. The urinary protein to creatinine (UPC) ratio was measured just after collection and SDS-AGE was performed. Samples were classified as affected by glomerular or tubular proteinuria if at least two bands of MW higher or lower than that of albumin (69 kDa) were present; mixed proteinuria was diagnosed when bands of MW higher and lower than that of albumin were present.

All the dogs remained in IRIS stage I after treatment. Consistent with a previous report, the UPC ratio decreased in 6/11 dogs, remained unchanged in 2/11 dogs and increased in 3/11 dogs despite the amelioration of clinical signs, likely depending on the release of antigens, that form additional immune complexes after the death of the parasite. As expected, proteinuria before treatment was mixed in 7/11 cases, glomerular in 2/11 cases and tubular in 2/11 cases. In 3 dogs, mixed proteinuria persisted during the follow-up. In 4 dogs with mixed proteinuria, the samples collected after treatment became glomerular, tubular, or negative (despite a UPC ratio > 0.5); one dog with glomerular proteinuria and one dog with tubular proteinuria became negative and the others remained glomerular or tubular, respectively, after treatment. Pure tubular proteinuria or negative results in proteinuric dogs may depend on dilutional effects that do not allow detection of weak glomerular bands, on storage artifacts or on the presence of proteins from the genital tract. Apart from these artifacts, the pattern of proteinuria in dogs treated for leishmaniasis tends not to change over time.

In conclusion, SDS-AGE may be influenced by preanalytical factors and does not provide reliable information during the follow-up of dogs treated for canine leishmaniasis.

DISCLOSURES

No disclosures to report.