

## Canine echinococcosis in northwest Libya: assessment of coproantigen elisa, and a survey of infection with analysis of risk-factors

In order to determine the prevalence and risk factors for canine echinococcosis in different endemic localities in the Tripoli area of northwest Libya, stray dogs were examined post-mortem, and owned dogs screened for *Echinococcus granulosus* infection using a standardised genus specific coproantigen ELISA. The prevalence of *E. granulosus* infection at necropsy in stray-dogs was 25.8% (15/58, 95% CI 15.3-39.0%), and 21.6% (72/334, 95% CI 17.3-26.4%) of owned dogs tested were positive by coproantigen ELISA. Sheepdogs appeared to have a significantly higher copro-positive prevalence (19/19 positive,  $p = 0.003$ ), compared to 23.6% of other dog classes (e.g. 52/220 guard dogs and household pets). Worm burdens in necropsied dogs ranged from 29 to 2900 (mean 1064) and were positively correlated to coproantigen ELISA OD values ( $r_s = 0.87$ ,  $p < 0.001$ ), but negatively correlated with dog age ( $r_s = -0.69$ ,  $p = 0.001$ ). Dog age was a significant factor in copro-prevalence as there was an increasing coproantigen-positive tendency in younger dogs ( $\leq 5$  years,  $p = 0.04$ ). A total of 45/132 (34%, 95% CI 25.9-42.1%) of farms/homestead had at least one dog that was coproantigen positive. Overall copro-prevalence in dogs by locality varied, with Alkhums (Leptis-Magna) district having the highest copro-prevalence at 38.7% (24/62, 95% CI 26.6-50.8%) ( $p = 0.001$ ). Coproantigen testing of a cohort of owned dogs before and approximately 15 months after praziquantel treatment showed a significant decrease in the coproantigen positive rate from 21.6% (72/334) to 9% (21/233) post-treatment. The overall *E. granulosus* coproantigen positive rate ('re-infection rate') within the same cohort of dogs was 22 % (10/45) by 15 months post-treatment. Significant risk factors for a copro-positive owned dog were associated with non-restraint of dogs, and owners that did not de-worm their dogs. Home slaughtering of livestock and lack of knowledge about *E. granulosus* transmission were also significant risk factors for a canine coproantigen positive result. © 2005 Elsevier B.V. All rights reserved.