IN-VIVO EFFICACY OF TOLTRAZURIL ON EXPERIMENTALLY INDUCED TOXOPLASMA GONDII TISSUE CYSTS IN LAMBS: A NOVEL STRATEGY FOR AVOIDANCE OF HUMAN EXPOSURE TO RED MEAT BORNE TOXOPLASMOSIS

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The purpose of the present work was to investigate in-vivo efficacy of toltrazuril on \(T.\) gondii tissue cysts following induction of chronic toxoplasmosis in 4-week-old lambs (n=27) by intraperitoneal and intramuscular inoculation of \(1\times10^5\) \(T.\) gondii ME 49 strain oocysts (day 0). Two of 9 control lambs (oocyst inoculated but non-treated) were killed on toltrazuril treatment days (day 15 and 22), and upon confirmation of tissue cyst formation using immunohistochemical techniques, lambs received either 20mg/kg (n=9) or 40mg/kg (n=9) toltrazuril at their 43 and 50-day-old ages (Baycox® Bovis 5%, Bayer Healthcare). Anti-\(T.\) gondii antibodies were screened by IFAT throughout the experiment. On day 90, the remaining 25 lambs were necropsied, and samples from 11 different muscles and brain were collected. The tissues were examined to detect tissue cysts by histopathology, immunohistochemical techniques, PCR and percoll gradient centrifugation. In toltrazuril treated group, tissue cysts exhibited degenerative changes in the cyst wall, complete macrophage invasion of the cysts, decrease in number and total absence (in 8 out of 18 lambs) of the cysts. According to PCR results, the brain and semitendinosus muscle in 7 of 7 were positive in control lambs unlikely to 12 of 18 in toltrazuril treated lambs. In conclusion, the results were promising, as the toltrazuril treated lambs had markedly less parasite counts, as compared to those of untreated control lambs. Further research should be performed, to decide if toltrazuril treatment of sheep could be extensively used as a strategy to reduce cyst exposure of humans after consumption of raw or undercooked mutton.