Preliminary results of ozone therapy in 6 cases of bovine mastitis

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Objectives: The use of antimicrobial drugs in the food industry, particularly in animal production, is a major cause of the global health crisis of antimicrobial resistance. This study aimed to describe the therapeutic response of intramammary ozonated oil as an alternative therapeutic for bovine mastitis.
Material and Methods: Six dairy cows were included in this study. Mastitis detection was performed using the Californian Mastitis Test (TCM) and through macroscopic observation of the milk and udder. A 3-day treatment with 10 mL of intramammary ozonated oil 800 P.I. were administrated at each morning milking. General clinical and udder examination and analyses were performed before and after the ozone treatment to understand the evolution and viability of this alternative. Somatic Cell Count (SCC) performed by Fotossomatic, bacteriological culture of aseptically collected milk samples, bacterial species identification conducted by polymerase chain reaction (PCR) and by VITEC®MS, antimicrobial susceptibility test, hemogram, glutamate oxaloacetate transaminase (AST/GOT), gamma-glutamyl transpeptidase (GGT), total bilirubin (TBil) and oxidative stress measurement, were interpreted to infer the influence of the ozone protocol used in the wellbeing of the animals.
Results: All animals exhibited mild clinical mastitis. Fourteen strains of bacteria were isolated from the milk samples. The most common were *Escherichia coli* (n=8), along with *Staphylococcus spp*. (n=2), *Klebsiella spp*. (n=1), and *Pseudomonas spp*. (n=1). Clinical examination showed improvement in 4 out of 6 cases after treatment. The SCC results revealed an expressive decrease after treatment in 5/6 cows. Bacteriological cultures conducted after the protocol showed no growth in 3 out of 6 samples.
Conclusions: The management of clinical mastitis with ozone can be achieved in some cases of mastitis, but more studies are required to understand its role.

Keywords: Mastitis, Antimicrobial resistance**,** Antibiotic therapy, Ozone therapy.
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