

TITLE: OUTBREAKS OF WATERBORNE DISEASE RELATED TO *Aeromonas spp* - EPIDEMIOLOGY OF EVENTS OCCURRED IN MINAS GERAIS IN THE PERIOD 2014 TO MAY 2017 AND PROFILE OF ANTIMICROBIAL SUSCEPTIBILITY OF ISOLATED MICROORGANISMS

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ABSTRACT:

Several species of *Aeromonas* are described as pathogens that cause infections in humans assuming epidemiological relevance in cases of opportunistic infections in immunocompromised patients. Transmission can occur mainly through the ingestion of contaminated water and the main symptoms resulting from the infection are low fever, diarrhea, vomiting and abdominal pain. Between 2014 and May 2017, samples of water for human consumption from 133 outbreaks suspected of having a water source were analyzed by the Laboratory of Water of Fundação Ezequiel Dias (Lacen-MG). In 18 outbreaks were identified microorganisms of the genus *Aeromonas*. The species identified were *A. sobria*, *A. hydrophila* and *A. caviae*. According to data from the research file, the 18 outbreaks involved 259 patients with symptoms such as diarrhea (88%), vomiting (88%), nausea (71%), colic (65%) and fever (24%). In 14 outbreaks the samples of water for human consumption suspected of being involved in the events and from which were isolated microorganisms of the genus *Aeromonas* came from alternative water supply and that were not submitted to any treatment; In the other 4 outbreaks, the samples were of treated water, coming from a water supply system, indicating failure in the treatment of water or contamination after treatment; Some authors report that *Aeromonas* would be more resistant to chlorination than *Escherichia coli*, traditionally used as an indicator of water quality for human consumption. The determination of the antimicrobial susceptibility profile of 17 of the 18 isolates was evaluated using the semi-automated system VITEK II® (bioMérieux); the sensitivity test involved 16 antibiotics from 5 different classes. All isolates showed resistance to at least 2 β -lactam antibiotics; eight (47%) presented resistance to 6 antibiotics belonging to two classes (β -lactam and polypeptides), 3 (17%) to 5 antibiotics belonging to these two classes; All isolates showed resistance to ampicillin and to ampicillin associated with subactram. The antimicrobial resistance of the classes of β -lactams and polypeptides was observed in 15 (88%) of the isolates. High percentages of isolates resistant to various antibiotics alert to a public health risk, considering the possible implications in the treatment of severe clinical conditions involving *Aeromonas spp*.

Keywords: *Aeromonas spp*, antimicrobial susceptibility, water, outbreaks of waterborne disease

Development Agency: