

TITLE: ANTIMICROBIAL SUSCEPTIBILITIES OF BACILLI GRAM NEGATIVE IN RECREATIONAL WATERS OF RIO DE LA PLATA

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ABSTRACT:

During the past sixty years, antimicrobials were extensively used as growth promoters in breeding practices as well as in human and veterinary medicine. Antibiotic resistant bacteria (ARB) are recognised as a serious threat to human health globally because once easily treatable infections are becoming harder and more expensive to treat, exerting a burden on healthcare services worldwide. Antibiotic resistant bacteria have been detected in natural aquatic environments, and ingestion of water during water sports is one route by which many people could be directly exposed. The Rio de la Plata receives in its Argentine margin like tributaries rivers, streams and channels with a high degree of pollution produced by the activities of the greater urban conglomerate of Argentina. The importance of the study of the South Coast Strip lies in the fact that its waters are used for and as a source of water supply for drinking water, to meet the needs of more than 10,000,000 inhabitants. In this study, we evaluated the occurrence, concentration and antimicrobial susceptibilities of bacilli Gram negative in the coast of Rio de la Plata. Water samples of the coast were taken seasonally during 2015-2017. The prevalence of resistant coliforms β -lactam antibiotics was determined. Antibiotics were added to the culture media (Gelose, VRBL) to evaluate the percentage of resistant bacteria by comparison with plating experiments without any antibiotics. Resistance to ceftazidime, ceftriaxone, imipenen and meropenen was tested. From each sample, one to 10 colonies showing macroscopically morphological differences were subcultured and identified by the API 20E and 20 NE system. The resistance of the isolates to antimicrobials was evaluated using the disk diffusion method. Resistance of the isolates was tested against 12 antimicrobials. In all samples bacteria resistant to ceftriaxone and meropenen were detected. The highest prevalence was observed for ceftriaxone, with mean values of 25% to 4% depending on the sampling site. The percentage of resistance showed by ceftazidime were 12% to 1%.The antibiotics concerned were principally Trimethoprim-sulfamethoxazole, cephalothin, ampicillin-sulbactam. The presence of a high prevalence of β lactam resistant bacteria in aquatic environments of recreational use raises the question of the possible transmission by environmental routes by the water which represents a risk for public health that must be evaluated.

Key words: antimicrobial resistance, recreational water, antibiotic.

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