TITLE: PHENOTYPIC TESTS FOR THE DETECTION AND DIFFERENTIATION OF CARBAPENEMASE PRODUCTION IN ENTEROBACTERIA ISOLATED FROM BLOOD CULTURES OF ONCOLOGIC PATIENTS

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ABSTRACT:

Oncological patients are a vulnerable group for the development of bacterial infections, especially due to treatment aggressiveness. In this context, enterobacteria are a frequent group of microorganisms in nosocomial infections and related to the rapid and progressive acquisition of mechanisms of resistance to antimicrobial agents, requiring multidisciplinary efforts in their detection, prevention and control. The betalactamases production among Gram-negative bacteria stands out as one of the main resistance mechanisms and the carbapenemase group is the most worrying. The objective of the study was to detect and differentiate the production of serine or metallo carbapenemases by phenotypic method in non-sensitive enterobacteria strains isolated from blood cultures of patients attended at a cancer hospital. This is an experimental study, carried out for one year, starting in September 2015, with enterobacteria previously identified and evaluated for the susceptibility profile to carbapenems. All isolates not sensitive to ertapenem, meropenem and/or imipenem were evaluated for the carbapenemase production by mCIM and eCIM phenotypic techniques. This study was approved by the Ethics and Research Committee of the hospital involved in the study. Of the 17 previously stored enterobacterial isolates (freezer -20 º C) included in the study, 15 were viable for performing phenotypic tests. Of these, only five were positive in the mCIM test, suggesting the production of carbapenemase. In order to discriminate if the enzymes produced by the microorganisms were serine or metallo carbapenemase, these isolates were tested by the eCIM method, and all showed negative results, thus determining that they were serine carbapenemases. The dissemination of resistance mechanisms to the class of carbapenem antibiotics, especially enterobacreias, is a concern and becomes a global public health problem. Although the production of enzymes that inactivate this class of antibiotics is widespread in Brazil, this study reinforces the importance of knowing the local epidemiology regarding the susceptibility profile of the bacterial isolates and the investigation of their possible mechanisms of resistance, in order to establish measures of control and empirical therapies appropriate to the hospital profile

Keywords: Carbapenemase, betalactamicos, blood culture, oncologic patients, *Enterobacteriaceae*