

TITLE: PREVALENCE OF ENTEROBACTERIALES CARBAPENEMASES-PRODUCING USING NG CARBA-5 IMMUNOCHROMATOGRAPHIC TEST IN CLINICAL ISOLATES OF HOSPITAL SÃO RAFAEL, SALVADOR - BAHIA.

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ABSTRACT:

Carbapenemase-producing *Enterobacterales* (CPE) are emerging worldwide, causing nosocomial outbreaks. Early identification of infections caused by CPE can help to optimize patient care and improve clinical outcome, as the development of infection control measures. Immunochromatographic methods has a very important role in the detection of carbapenemases, mainly due to their practicality and speed in the result, contributing to the reduction of hospitalization time and mortality. The aim of this study was to determine the prevalence of carbapenemases in *Enterobacterales*, using the immunochromatographic test NG CARBA-5. A total of 322 carbapenem-resistant *Enterobacterales* were evaluated, isolated from clinical samples from different sites of patients hospitalized at Hospital São Rafael - Salvador-Bahia, between September 2020 and May 2021. The immunochromatographic test (NG CARBA-5 - NG Biotech, Guipry, France) was performed on the isolates from growth in culture media, as described in the manufacturer's protocol, to detect 5 types of carbapenemases (KPC, NDM, OXA-48, VIM and IMP). ATCC strains were used as controls. Of the total number of microorganisms evaluated (N=322), NG CARBA-5 detected 185 KPC producers (57.45%), 109 NDM (33.85%), enzymatic co-production (KPC and NDM) in 27 isolates (8.39%) and was not able to determine the enzyme in one case (0.31%). The most common isolated species was *Klebsiella pneumoniae* group (74.0%), followed by *Enterobacter cloacae* complex (10%) and other *Enterobacterales* represented 16.0% of the total. The urinary tract was the site with the highest number of isolates (35.4%), followed by bloodstream (25.2%), respiratory tract (13.7%), intrabdominal (5.2%) and isolates with different sites accounted for 20.5% of the total. NG CARBA-5 is a convenient method to accurately identify carbapenemases in isolates from different sites and among the main advantages of the method is the short response time. Considering the current situation of bacterial resistance, the characterization of the type of carbapenemase can directly impact the patient's clinic, helping to choose antibiotics earlier and more assertively, reducing the time and cost of hospitalization. The methodology indispensable in the clinical microbiology routine, especially with the emergence of new antibiotics, where the characterization of carbapenemase is an important factor in the choice.

Keywords: antibiotics, carbapenemase, carbapenems, NG CARBA-5