

TITLE: ESBL-PRODUCING *Escherichia coli* IN ASYMPTOMATIC NURSING HOME RESIDENTS

AUTHORS: ARAÚJO, E.A.; SILVA, E.C.; BARBOSA, F.M.A.; ROCHA, A.K.O.; FREITAS, C.F.; REIS, R.T.P.; MENDES, M.A.; NETO, J.C.R.; SILVA, M.K.; SIQUEIRA, A.B.S.

INSTITUTION: UNIVERSIDADE FEDERAL DE PERNAMBUCO, RECIFE, PE (RUA PROF. ARTHUR DE SÁ S/N, CDU, CEP 54 740-000, RECIFE – PE, BRAZIL)

ABSTRACT:

Colonization of the urinary tract by enterobacteria has been considered the main cause of urinary tract infection (UTI), especially *Escherichia coli* bacteria, account for about 80% of cases of UTI. It is common for this microorganism to acquire mechanisms of resistance to multiple antimicrobial agents, such as extended-spectrum β -lactamases (ESBL). UTI caused by an ESBL producing bacteria make an uncomplicated UTI a challenge to manage. This study aimed to verify cases of UTI in asymptomatic elderly living in a nursing home in the city of Recife-PE, through laboratory diagnosis. Thirty-six urine samples were collected from thirty-one elderly residents at padre Venâncio nursing home, with functional capacity to collect the urine samples. Urine culture were obtained from cystine lactose electrolyte deficient agar medium and chromogenic UTI medium. Morphological and physiological aspects was used for bacterial identification, after UTI quantitative confirmation ($\geq 10^5$ CFU/mL). Antimicrobial susceptibility testing was performed by standard disk diffusion method with antimicrobial agents for *Enterobacteriaceae* such as ampicillin (AMP), amoxicillin-clavulanate (AMC), cefoxitin (CFO), Imipenem (IPM), gentamicin (GEN), tetracycline (TET), ciprofloxacin (CIP), norfloxacin (NOR), trimethoprim-sulfamethoxazole (SUT) and nitrofurantoin (NIT). For ESBL-screening was used cefotaxime (CTX) and ceftazidime (CAZ) and double-disk synergy test (DDST) for ESBL phenotype confirmation using also cefepime. Thirty (83%) samples were considered valid, four (11%) had repeated culture with a new sample and two (6%) were considered invalid even after a new sample, because it had multiple microorganisms present, being probable contamination. Significant asymptomatic bacteriuria was observed in 17% residents and 83% no uropathogens were observed. The frequency of etiological agents was 80% of *E. coli* and 20% of *Klebsiella pneumoniae*. Of the strains of *E. coli*, 50% was resistant to AMP, 50% to CFO, 50% to fluoroquinolones tested and 25% intermediate only to CIP and to SUT 100%. Attention was drawn to ESBL strain *E. coli* 101/18 resistant to extended-spectrum cephalosporins (CTX and CAZ) confirmed by DDST with observation of phantom zones. Results of urine cultures highlights the importance of laboratory diagnosis of UTI for elderly residents in shared environments. Due to asymptomatic bacteriuria in geriatric age group increases the risk of developing symptomatic UTI.

Keywords: ESBL, *Escherichia coli*, urinary tract infection

Development Agency: Pró-Reitoria de Extensão e Cultura (Proexc) – UFPE