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Molecular profile of ESKAPE pathogens from Komfo Anokye teaching hospital in Ghana

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Antimicrobial resistance is currently a major scientific concern both in hospital and community settings globally due to the increasing rate of numbers of bacterial strains acquiring resistance to many relevant antibiotics The bacterial pathogens that are of great medical importance and associated with outbreaks of highly drug resistant strains include the 'ESKAPE' pathogens (*Enterococcus faecium, Staphylococcus aureus, Klebsiella pneumoniae, Acinetobacter baumannii, Pseudomonas aeruginosa* and *Enterobacter* spp.). The resistance mechanisms include mutations in penicillin binding proteins, efflux mechanisms, alterations in outer membrane proteins and the production of hydrolyzing enzymes. However, the most common resistance mechanism to β-lactams antibiotics is the production of β-lactamases among its Gram-negative isolates. Some important β-lactamases contributing to therapeutic failure include extended-spectrum β-lactamases, metallo-β-lactamase, AmpC β-lactamase and carbapenemases such as *Klebsiella pneumoniae* carbapenemases. With the global surge in the occurrence of these resistant episodes, prompt detection is necessary for implementation of strict infection control policies and treatment with alternative antimicrobials. In spite of this, relatively little governmental, funding and academic attention has been received in Ghana and the West Africa sub-region. The paucity of data on the prevalence of resistant among these clinical species is an index of limited research carried out so far; hence, the study to determine the resistance factors and mechanisms among the above-mentioned clinical isolates. Thus providing quality data on resistance prevalence become a baseline for further research and comparative studies. Phenotypic detection of β-lactamases and confirmation was done using CLSI, (2014) guidelines. Detection of β-lactamases multiple genes was done using whole sequencing technology.

Biography

Nicholas Agyepong holds MSc Biotechnology and Phil Pharmaceutical Microbiology degrees from Kwame Nkrumah University of Science and Technology in Ghana. He was a Research Assistant between 2005 and 2007 in the Parasitology laboratory, Noguchi Medical Research Institute, Accra. He later became Lecturer and went through the ranks to become a Head of the Department of Dispensing Technology at Sunyani Polytechnic in Ghana. He is currently PhD Pharmaceutics student at the University of Kwa-Zulu Natal in South Africa, under the supervision of Prof. Sabiha Y Essacks.

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