TITLE: Prevalence anaerobic bacteria isolation from patients in hospitals at Rio de Janeiro.

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ABSTRACT

Obligate anaerobic bacteria cannot survive in the presence of oxygen (O_2), dying few minutes after exposure to atmospheric air. They are widely distributed in nature and are prevalent in gastrointestinal tract of human. Most infections caused by these microorganisms are endogenous. The obligate anaerobic bacteria cause a range of infections such as bacteremia, intra-abdominal infections, endocarditis, septic arthritis and others. Most clinical laboratories doesn't perform culture for anaerobic bacteria due to their intolerance to O_2. However, its importance is increasing due to the emergence of antimicrobial resistance. At this study, we evaluated the prevalence of obligate anaerobic bacteria from clinical specimens isolated from public and private hospitals in Rio de Janeiro from January to December of 2015. A total of 577 clinical samples were cultured in Blood Agar anaerobic medium and incubated for 72 hours in a jar with anaerobic atmosphere generator. Of the 577 samples evaluated, 103 (96 blood cultures, 3 bone fragments, 3 soft tissue and 1 pleural fluid) were positive with growth of 104 obligate anaerobic bacteria. Two different obligate anaerobic bacteria were isolated from one blood sample. After isolation, we performed Gram stain, respiration test and bacterial identification by mass spectrometry (MALDI-TOF, Vitek MS). We identified 41 *Propionibacterium acnes*, 28 *Bacteroides fragilis*, 8 *Bacteroides thetaiotaomicron*, 7 *Clostridium perfringens*, 3 *Prevotella* spp., 2 *Bacteroides vulgatus*, 2 *Clostridium clostridioforme*, 2 *Clostridium paraputrificum*, 2 *Fusobacterium mortiferum*, 2 *Finegoldia magna*, 2 *Peptoniphilus asaccharolyticus* and 1 strain of *Clostridium bifermentans*, *Clostridium difficile*, *Fusobacterium nucleatum*, *Parvimonas micra* and *Eggerthella lenta*. Most clinical laboratories have difficulties to perform culture for isolation of obligate anaerobic bacteria, due to laborious process. However, isolation of these microorganisms is important in trying to evaluate their prevalence as etiological agents on serious infections.

Keywords: Obligate anaerobes; MALDI-TOF; antimicrobial resistance.