

Title: USE OF SODIUM POLYANETHOL SULFONATE TO NEUTRALISE AMINOGLYCOSIDE IN SERUM SAMPLES OF PATIENTS TREATED WITH VANCOMYCIN PLUS GENTAMICIN

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Abstract:

The main limitation of microbiological method in antimicrobial assay is the combinatory therapy. In these cases it is fundamental the use of techniques to neutralize the antimicrobial activity of interfering drugs. Gentamicin is inhibited by the sodium polyanethol sulfonate (SPS) which is well known as a neutralizing agent of aminoglycosides. The aim of this study was to evaluate the SPS's ability to selectively inhibit gentamicin in patient serum (n = 20) treated with gentamicin plus vancomycin. The serum level of gentamicin was determined by bioassay on Müller Hinton agar (MHA) with *E. coli* ATCC 25922 as indicator organism. For the neutralization of gentamicin and selective detection of vancomycin were used a pair of MHA plates inoculated with *E. coli* ATCC 25922 and supplemented or not with SPS 1%, plate A and B, respectively. Any halo detected on the plate A indicates failure in inhibiting gentamicin, being this sample excluded from the assay for vancomycin. The data showed gentamicin serum level median of 2.11 µg/mL with minimum and maximum values of 1.11 and 19.26 µg/mL, respectively. Excluding an atypical sample, the two major gentamicin levels detected (9.06 and 8.86 µg/mL) were inhibited by the SPS 1%. No inhibition of gentamicin occurred in 10% of the tested samples. According to literature, gentamicin therapeutic concentrations ranging between 4.0 and 8.0 µg/mL. In our study the activity of gentamicin at the two highest concentrations detected (9.06 and 8.86 µg/mL) was inhibited by the SPS 1%, showing satisfactory results for this compound in neutralizing aminoglycoside in serum samples of patients treated with vancomycin plus gentamicin.

Key-words: sodium polyanethol sulfonate, gentamicin, vancomycin, antimicrobial assay

Financial support: CNPq, FAPES, CAPES, PRPPG-UFES