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Vancomycin (VA) and Trimethoprim/sulfamethoxazole (TMP-SMX) Activity on Community-Associated Methicillin Resistant *Staphylococcus aureus* (CA-MRSA) biofilm (Bf) in vitro.

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Effective empirical CA-MRSA treatment could be affected by Bf development. There is an increasing appreciation that planktonic microbes account for only a very small proportion of microbial life, the bulk are found in a sessile form in Bf. Therefore, we study the influence of VA and TMP-SMX in early Bf development. To better elucidate this, we work with 6 CA-MRSA. The CA-MRSA were Pantone-Valentine positive, determined by PCR. We employ the MIC (1.5 mg/l-0.125 mg/l) and sub-MIC (0.5 mg/l-0.06 mg/l) of VA and TMP-SMX respectively. As control we use one HA-MRSA with similar VA MIC and sub-MIC but with 20 mg/l (MIC) and 10 mg/l (sub-MIC) to TMP-SMX. Bf were grown using trypticase soy broth with and without antibiotics (AMs). Aliquots of overnight cultures were incubated with glass coupons during 3 h for cell attachment. Coupons were transferred to fresh media with and without corresponding AM concentrations, incubated for 24 h and evaluation previous staining with crystal violet. Visual observations revealed that CA-MRSA isolates are less effective to form Bf than HA-MRSA. Both AMs (MIC and sub-MIC) didn't affect CA-MRSA but affected in different degrees HA-MRSA Bf development. Microscopic observations: CA-MRSA with both AM produced more extracellular polymeric substances (EPS) than CA-MRSA without AM and similar to HA-MRSA with or without AM. Microcolonies structures were similar in all glass coupons for all isolates. The results showed that the presence of both AM seems not to affect early CA-MRSA Bf formation and there was an increase of EPS production. Recent reports showed a relationship between VA MIC and failure among patients with MRSA bacteremia treated with VA, attributing this failure to ≥ 1.5 mg/l MIC. Our experiment might explain controversies about effectiveness of AM treatment due to Bf formation rather than presence of planktonic CA-MRSA in the patients. It is necessary to use or added other AM with activity in early stage of Bf different of VA or TMP-SMX in patients with suspected or established CA-MRSA infections.