

TITLE: ADHERENCE OF *A. baumannii* TO HEP2 CELLS: WHAT IS THE IMPORTANCE OF ESTABLISH A PATTERN?

AUTHORS: UBER, A. P.; LODI, F. G.; ANJOS, M. M.; PEREIRA, P. M.; FARIAS, A. P. M.; GIMENES, F.; NISHIYAMA, S. A. B. TOGNIM, M. C. B.

INSTITUTION: UNIVERSIDADE ESTADUAL DE MARINGÁ, MARINGÁ, PR (AVENIDA COLOMBO, 5.790, BLOCO I90, CEP: 87.020-900, MARINGÁ - PR - BRASIL)

ABSTRACT:

Acinetobacter baumannii is one of the most frequent *Acinetobacter* species isolated from clinical sources of patients in the intensive care units (ICUs) associated with a significant increase in morbidity and mortality. These infections are associated with extended periods of hospitalization. The *A. baumannii* phenotype seems to play an important role in the capacity to persist and spread in the hospital environment such as its ability to colonize surfaces and form biofilm. The interaction of *A. baumannii* clinical strains with eukaryotic cells is an important step in bacterial colonization of the host. Hydrophobicity characteristics can contribute in the adhesion ability to epithelial cells and biofilm formation. This study aimed to evaluate Hep2 cells adherence of *A. baumannii* isolates. A total of twenty-nine isolates stored in Laboratory of Medical Microbiology of State University of Maringa were analyzed. Adherence to Hep2 cells was investigated, after 3 hours incubation by triplicate test. In addition also the surface hydrophobicity was determined by the affinity for xylene test. All isolates (100%) presented Hep2 cells adherence in different intensity. Seventeen isolates (58,6%) presented an aggregative adherence pattern to Hep2 cells and thirteen of these isolates (76,4%) showed a high hydrophobicity. Among twelve isolates that not presented an aggregative adherence pattern only five (41,6%) showed a high hydrophobicity, suggesting that the hydrophobicity of the cell surface may be a factor favoring the aggregative adhesion. According to our knowledge this is the first study that suggested a profile for the type of *A. baumannii* adhesion. The adherence pattern found remind to pattern presented by enteroaggregative *Escherichia coli* (EAEC), able to colonize persistently the intestinal epithelium and to form biofilm. Thus, we suggest that further studies are required to investigate if this adherence profile can be related to the ability of *A. baumannii* to stay in the hospital and to the high potential to form biofilm.

Keywords: *Acinetobacter baumannii*, adherence pattern, Hep2 cells, hydrophobicity.

Development Agency: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES)