INTRODUCTION

- Bacterial endocarditis causes significant morbidity and mortality. Prospective studies show a mortality rate as high as 22 percent.  
  - *Viridans streptococci* is a significant causative agent of native valve endocarditis in non IV drug using populations.  
  - *Viridans streptococci* produce a glycocalyx that leads to adherence to cardiac heart valves which may retard the penetration of antimicrobials.  
  - Species of *Viridans streptococci* that form a glycocalyx are known to incite infections more frequently and result in higher morbidity than bacteria that do not.  
  - Glyocalyx production has been quantified using the tryptophan assay developed by Shetlar et al.  
  - Previous work has shown an association between glycocalyx production and endocarditis.

OBJECTIVE

- To determine if the in vitro tryptophan assay of glycocalyx production by viridans group streptococci has potential value as a predictor of clinical pathogenicity.

METHODS

- Over a five year period, one hundred and twenty-three *Viridans streptococci* isolates were collected from patients with endocarditis from 40 hospitals to assess their spectrophotometric absorbance using the tryptophan assay.
- One investigator blinded to the cases reviewed the records and evaluated them for the presence of bacterial endocarditis according to the Von Reyn criteria.
- Glyocalyx production measurements by tryptophan spectrophotometric assay were evaluated to determine if there is a consistent and statistically significant correlation of particular spectrophotometric measurements and bacterial endocarditis.

RESULTS

- The tryptophan assay was used to assess the Absorbance values for the 123 isolates from patients with confirmed endocarditis.
- The largest group of isolates (N= 61) was included within the 0.120 to 0.169 absorbance value range.
- Significantly, a total of 115 isolates had absorbance values greater than 0.119.
- Analyzing the data revealed a mean absorbance value of 0.180 with a standard deviation of 0.055. A 95% confidence interval for the data set was calculated to be 0.17017 ≤ Absorbance Value (A500) ≤ 0.18983.

REFERENCE