

Comparative analysis of inflammatory markers produced by macrophages inoculated with invasive and colonizing strains of *Streptococcus agalactiae* (group b streptococcus) and evaluation of patients clinical data

ABSTRACT

Group B *Streptococcus* (GBS), infection and recurrence in newborns and pregnant women can lead to chronic medical illness resulting in significant morbidity, and mortality. Pathogenesis of GBS may be due to reasons such as activation of the immune system, followed by the production of inflammatory markers and toxic components by immune cells including macrophages. Methods: The studies on invasive and colonizing GBS strains inoculated either with peripheral or brain macrophages, the expression of nitric oxide (NO), cell viability, and CD40 were also measured by Griess assay, methyl tetrazolium assay (MTT), and flow cytometry, respectively. Furthermore, the clinical manifestations of the selected patients were also assessed for this study. Results: Outcome of inflammatory markers studies, after GBS inoculation indicated that, invasive GBS strains induced higher inflammatory markers in comparison to colonizing GBS strains. Furthermore, patients' clinical data showed that patients with invasive GBS infections had severe condition unlike among patients with colonizing GBS strains. The fatality rate in patients with invasive GBS strain were 30.8% while there was no death among carriers. Conclusion: This study, aimed to understand the immune response to GBS, and strengthen the knowledge on GBS pathogenesis. It was concluded that invasive GBS strains not only showed higher expression of inflammatory markers on immune cells but also had higher pathogenesis effect in comparison to colonizing GBS strains.

Keyword: Macrophages; *Streptococcus agalactiae*; Streptococcal infection; Nitric oxide (NO); CD40; Pregnancy