

**TITLE:** ANALYSIS OF *Streptococcus agalactiae* INFECTION IN INDUCED DIABETES MODEL

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**ABSTRACT:**

*Streptococcus agalactiae*, also known as Group B *Streptococcus* (GBS), is the most common cause of bacterial infections in newborns and immunocompromised adults. Severe GBS infections can also afflict nonpregnant adults, particularly in the elderly and individuals compromised by underlying medical conditions, like diabetes. The main reasons for increased incidence of GBS disease is not well understood. Among all diseases associated with GBS infections, diabetes is one of the most common. The insulin resistance is associated with increase susceptibility of invasive bacterial infections. Studies showing that the bspC protein may contribute to GBS invasion of the blood-brain barrier, causing meningitis. Thus, the aim of the present study was to investigate the mechanisms of GBS pathogenesis using streptozotocin-induced diabetic models in mice. The analysis of acute infection was performed for using C57Bl/6 mice. The mice were divided into four groups: non-diabetic non-infected (NDNI), diabetic non-infected (DNI), non-diabetic infected with GBS (NDI) and diabetic infected with GBS (DI) strains. The infection was performed intraperitoneally with GBS90356, GBS90356 $\Delta$ bspC and COH1GBS strains belonging to clonal complex 17 (hypervirulent). Control animals were treated with sterile 0.1 M phosphate buffer. After five days, the mice were euthanized and lungs, heart, bladder and kidney were collected. The viable bacteria were verified by colony-forming units per milliliter (CFU/mL) count on blood agar medium with 5% defibrinated sheep blood. In bladder and kidney, a high number of GBS90356 $\Delta$ bspC strain was detected in diabetic and non-diabetic models. Moreover, in the brain, GBS90356 strain was the most detected when compared of the GBS90356 $\Delta$ bspC and COH1 strains in DI animals ( $p < 0.001$ ). In the lungs, the DI group infected by GBS90356 showed high viable colonies statistically significant when we compared with NDI group ( $p < 0.01$ ). Results showed that intraperitoneal GBS infection in mice was successful and suggest that individuals with diabetes can develop acute GBS diseases in different organs.

**Keywords:** *Streptococcus agalactiae*, diabetes, infection.

**Development Agency:** CNPq, CAPES, SR-2/UERJ, FAPERJ