TITLE: INCREASED SUSCEPTIBILITY OF DIABETIC MICE TO *Streptococcus agalactiae* INFECTION

AUTHORS: MENDONCA, J.C.; GUARDA, D.S.; ARAUJO, V.H.V.O.; DIAS, A.A.S.O.; SILVA, J.F.R; LISBOA, P.C.; NAGAO, P.E.

INSTITUTION: UNIVERSIDADE DO ESTADO DO RIO DE JANEIRO, RIO DE JANEIRO, RJ (RUA SÃO FRANCISCO XAVIER, 524, PAVILHÃO HAROLDO LISBOA, INSTITUTO DE BIOLOGIA ROBERTO ALCANTARA GOMES, DEPARTAMENTO DE BIOLOGIA CELULAR,5º ANDAR, SALA 501B, CEP 20550-013, RIO DE JANEIRO – RJ, BRAZIL).

ABSTRACT:

*Streptococcus agalactiae*, also known as Group B *Streptococcus* (GBS), is the most common cause of bacterial infections in newborns and imunnocompromised adults. Although the physical structure of the capsular polysaccharide (CPS) of each GBS serotype is unique, they're classified in ten different GBS serotypes (Ia, Ib, II-IX).Severe GBS infections are observed in non-pregnant adults, particularly in the elderly and individuals compromised by underlying medical conditions, like diabetes, cardiovascular diseases or cancer. The main reasons for increased incidence of GBS are not well understood, and disease surveillance by itself is not enough to stablish the subjacent cause. Between all diseases associated with GBS, one of the most common is diabetes.The insulin resistance is associated with increase susceptibility of invasive bacterial infections. This study aims to investigate GBS mechanisms for development of pathogenesis using a diabetic induced murine model. Six-week-old male and female Swiss webster mice were divided in four groups: 1. control; 2. infected control; 3. diabetic; 4. infected diabetic. Streptozotocin were injected intraperitoneally to induce diabetes and animals control received citrate buffer.Three days later, they were infected intranasally with $1x10^5$CFU/mL of hipervirulent strain GBS90356. After three weeks, mice were euthanized and lungs and heart were collected. Lungs and heart were fixed with paraformaldehyde 4% for histopathological analysis and remaining tissue was cultured on blood agar base plates containing 5 % sheep defibrinated blood and counting the resulting colonies (CFU/mL).Both tissues presenting higher bacterial growth on diabetic mice ($<10^3$CFU/mL) when compared to control.A higher number of inflammatory cells were observed (mostly macrophages) in group 4, as well as less tick and ruptured alveolar septa, compared to the other groups. Group 2 presented extravasations of red blood cells. Neither group presented fibrosis, as we expected. This study suggest that individuals with diabetes develop a severe GBS infection, subsequently triggering intense immune response and more susceptible to recurrent infections of the pulmonary tract and/or other infections including meningitis, osteomyelitis and endocarditis.

Keywords: *Streptococcus agalactiae*, diabetes, mice lungs and heart.

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