PHYLOGENETIC STUDY OF GROUP B STREPTOCOCCUS

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Group B streptococcus (GBS) colonizes the vaginal tract of 15-35% of pregnant women [6]. This pathogen can be passed from mother to infant, usually during delivery [1]. If the neonate does contract GBS, serious illness such as sepsis, meningitis or pneumonia may result. The use of intrapartum prophylaxis helps keep the number of neonatal GBS infections low [5], however, each year approximately 8,000 neonates develop a serious case of GBS, and about 800 die [1]. Mothers considered to be at risk for passing GBS to their baby are offered prophylaxis to help prevent the neonate from contracting GBS [5]. However, this is ineffective because it exposes more infants to antibiotics than would actually contract the disease.

GBS was first described as a pathogen infecting bovine in 1887; only in the 1960’s did GBS emerge as a human pathogen [2]. Recently there has been an investigation into the relation between human and bovine GBS. Preliminary studies on human serotype III strains show that they may be closely related to bovine strains [2,41].

Nine serotypes of GBS are known to exist, I-BX. Our lab uses two main techniques to study the phylogenetic lineages of GBS, including Restriction Digest Patterns (RDP) and Multilocus Sequence Typing (MLST). Serotypes Ia, Ib, II, III, and V are particularly invasive and responsible for most neonatal infections. Recent work has focused on serotype V. According to previous research, there are three subtypes of serotype V: V-1, V-2, and V-3. These serotypes differ in the type of inB allele they contain and the presence of GBSiI in scb-Bmp [3]. We are investigating whether the inB allele and GBSiI insert correctly identifies all GBS serotype V lineages. The data collected on the RDP typing and MLST data will be compared. This information will help determine the different lineages of GBS, how divergent this species has become, and its relation to bovine GBS. Data obtained from the genetic studies of the different serotypes may also shed light on why some strains are particularly virulent and prone to infect neonates [3]. With this knowledge, health care professionals can be more effective in prescribing intrapartum prophylaxis.

Works Cited


