

Cesarean Sections Increase the Risk of Sepsis in Neonates with Gastroschisis

Desai, Arti K., MPH, PhD(s)¹; Mansour, Trina, MD(c)²; Billings, Tara L., DO³; Truong, Giang, MD⁴; Merritt, Thurman, MD⁴; Girsen, Anna, MD⁵; Judy, Amy, MD⁵; Davis, Alexis, MD⁵; Hintz, Susan, MD⁵; Blumenfeld, Yair, MD⁵; Jabo, Brice, MD, PhD(c)⁶; Oshiro, Bryan T., MD^{2,6}

¹ Department of Earth and Biological Sciences, Basic Sciences, School of Medicine, Loma Linda University, CA ² Perinatal Research Institute, Loma Linda University Children's Hospital Loma Linda, CA ³ OB/GYN, Loma Linda University, Loma Linda, CA ⁴ Pediatrics, Loma Linda University, Loma Linda, CA ⁵ Department of Obstetrics & Gynecology, Stanford University School of Medicine, Stanford, CA ⁶ School of Public Health, Loma Linda University, Loma Linda, CA

Introduction

Gastroschisis is a severe paraumbilical defect of the abdominal wall resulting in the infant's intestines to protrude outside of the baby's body.^{1,2}

Studies show an increased prevalence of gastroschisis on both a global and local scale throughout the last few decades and the State of California and Inland Empire counties are no exception to this trend.³⁻¹³ Specifically, in San Bernardino and Riverside Counties of Southern California annual rates of gastroschisis was noted as 3.2 and 6.0 per 10,000 live births in the years 2005 and 2006, respectively.¹³

While the mortality rate is low, associated morbidities such as susceptibility to sepsis can lead to prolonged hospitalization stays.

In order to optimize management of neonates with gastroschisis we evaluated the risk of culture proven sepsis based upon the mode of delivery.

Additionally, we investigated the effect of sepsis and mode of delivery on length of stay (LOS).

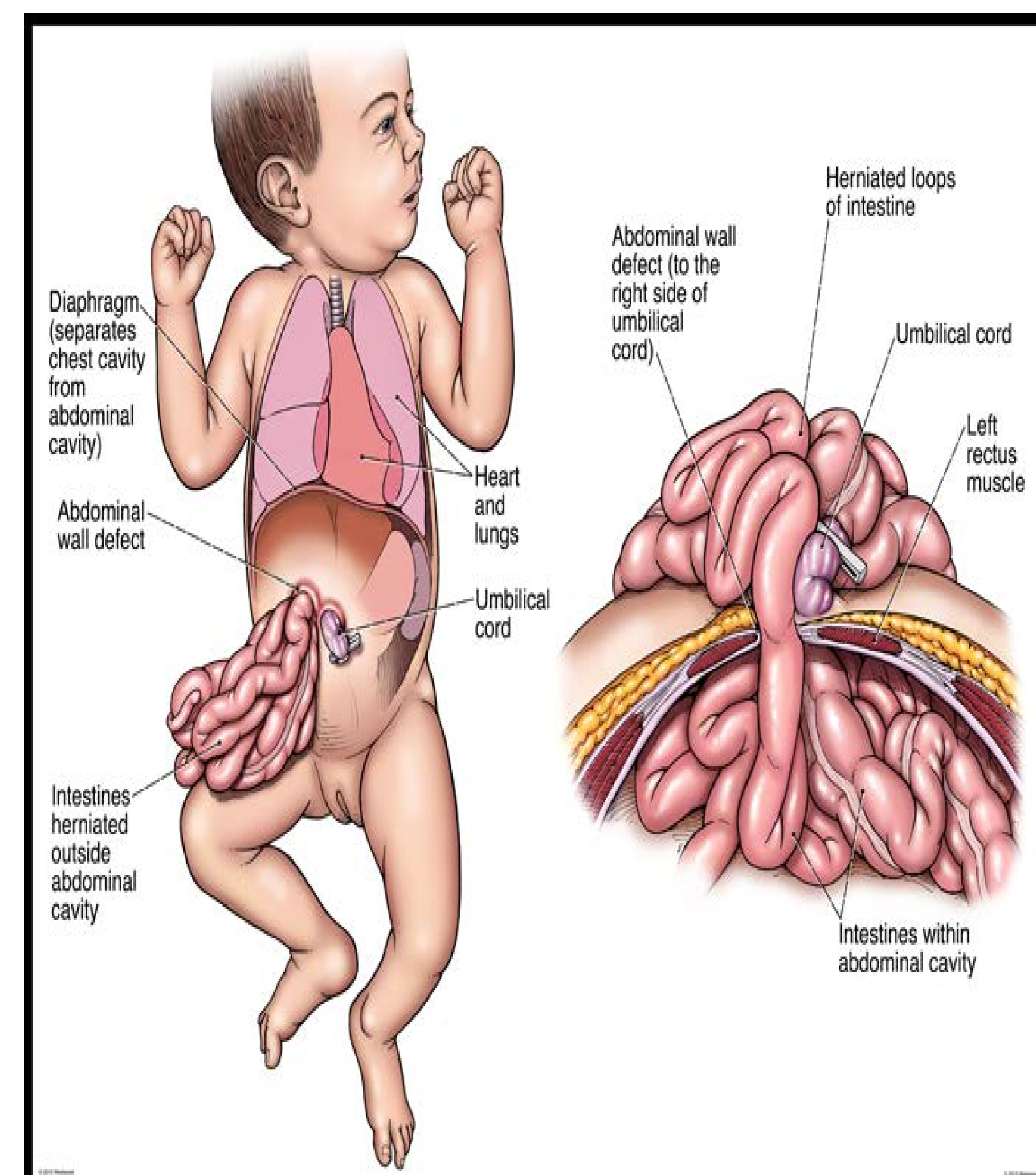


Figure 1. Illustration of infant with neonatal gastroschisis.

Materials and Methods

Records of neonates with gastroschisis and their mothers at two academic medical centers from February 1999 to December 2012 were reviewed.

The mode of delivery was defined as: vaginally (V), cesarean section with labor (CS&L), and cesarean section (CS) without labor.

Sepsis rates by mode of delivery were assessed. Log-binomial risk ratios (RR) and 95% confidence intervals (CI) were reported after adjustment for the presence of chlamydia, genital herpes and urinary tract infections (UTI); the effects of sepsis and mode of delivery on LOS were assessed using multiple linear regression.

Results

Among 164 neonates, 57 (34.8%) had culture proven sepsis, one of which had early onset sepsis.

The mode of delivery was distributed as follows: 85 V (51.8%), 42 CS&L (25.6%), and 37 CS (22.6%).

Sepsis incidence was 2.5 times more likely in CS&L compared to V, RR=2.51(1.55-4.05). Sepsis rate in CS was not significantly increased compared to V, RR= 1.50(0.82-2.77).

Neonates delivered to mothers with chlamydia, genital herpes or UTI had RR=1.58(1.04-2.41), RR= 1.85(1.35-2.52) and RR= 1.85(1.35-2.52) of sepsis, respectively.

LOS in neonates delivered by CS&L and CS were 15 (-31 to 0.55) days and 6 (-22 to 9) days shorter, respectively, compared to V.

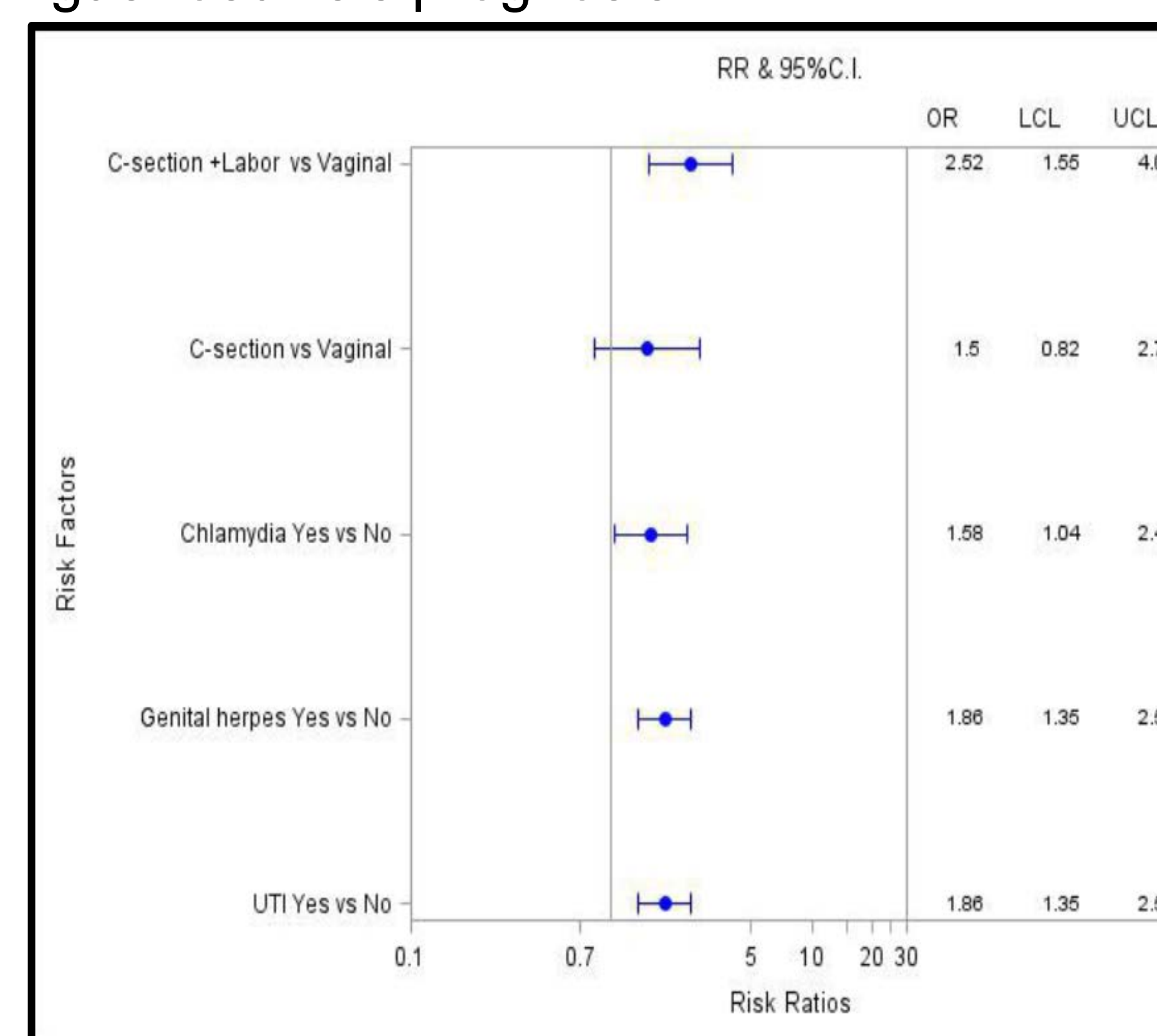
Neonatal sepsis increased LOS by 50 (35 to 63) days compared to neonates without sepsis.

Discussion

CS&L was associated with an increased rate of neonatal sepsis when compared to V but the LOS was 15 days shorter than V. CS showed no difference in neonatal sepsis rates when compared to V and the LOS was 6 days shorter than V.

Neonates with gastroschisis delivered to mothers with chlamydia, genital herpes or UTI showed a significantly greater risk of sepsis and the presence of sepsis increased LOS by 50 days when compared to neonates without sepsis.

Future investigations are necessary in comparing the gastroschisis population to controls to aid in further discovery of gastroschisis prognosis.



Graph 1. Relative risk of sepsis for mode of delivery, chlamydia, genital herpes and urinary tract infections.

Conclusion

A significant increase in risk of sepsis was observed for neonates with gastroschisis delivered by CS&L however their LOS was shorter compared to V; also, neonates delivered to mothers with chlamydia, genital herpes or UTI showed a significantly greater risk of sepsis.

Utilizing epidemiological data can serve as an important tool in elucidating trends which can aid in improving effectiveness of translation interventions to improve neonatal management and care.

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