

Developmental Pediatrics

Title: SURVIVAL OF INFANTS WITH SPINA BIFIDA IN TEN REGIONS OF THE UNITED STATES

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Background: Evaluation of survival of children with spina bifida (SB) has been limited mainly to short-term follow-up and certain regions of the United States.

Method: This study examines survival trend and prognostic factors based on studies with long-term follow-up in 10 regions in the U.S., namely Arkansas (AR), metropolitan Atlanta (AT), California (CA), Colorado, Iowa (IA), New York (NY), North Carolina, Oklahoma (OK), Texas (TX), and Utah. The authors used Kaplan-Meier method to estimate the one-year survival probability, and calculated relative survival probabilities (ratios) of infants with SB comparing with infants with any other birth defects in AT. Adjusted hazard ratios (aHR) and 95% confidence intervals were estimated in relation to birth weight and presence of major heart defects. For regions available for long-term follow-up (AT, CA, IA, NY), the trend of survival probability to one year of age by time period (83-89, 90-96, 97-02) was examined.

Results: The one-year survival probability for SB ranged from 84% to 92%, while the 20-year survival probability was 80% in AT, and 85% in CA, IA, and NY. Among regions with long-term follow-up, the one-year survival probability improved in AT (87% to 90%) ($p < 0.1$), NY (89% to 91%) ($p < 0.1$), CA (89% to 94%) ($p = 0.01$) and IA (92% to 96%) ($p = 0.005$). The relative survival probability to one year of age ranged from 0.91 to 0.99. For all regions, low birth weight was associated with an increased risk of mortality (aHR ranged 2.7-8.5 for $< 2500\text{g}$ vs. $\geq 2500\text{g}$). In AR, CA, NY, OK and TX, infants with SB born with major heart defects had an increased risk of mortality (aHR ranged 1.8-4.6).

Conclusion: Further studies are warranted to elucidate possible influences of access to health services and treatment on survival of children with SB.