

Oral Presentation

Epidemiology of neural tube defects and folic acid

D Shurtleff*

Address: Department of Paediatrics, University of Washington, Seattle, Washington, USA

Email: D Shurtleff* - shurtleff@seattlechildrens.org

* Corresponding author

from 48th Annual Meeting of the Society for Research into Hydrocephalus and Spina Bifida
Dublin, Ireland, 23–26 June 2004
Published: 23 December 2004

Cerebrospinal Fluid Research 2004, **1**(Suppl 1):S43 doi:10.1186/1743-8454-1-S1-S43

This article is available from: <http://www.cerebrospinalfluidresearch.com/content/1/S1/S43>

Since the 1930s the birth incidence of Neural Tube defects has been declining worldwide. The birth incidence varies across time and in different geographic areas at the same time.

mination of affected foetuses require longer term studies than published to date.

The birth incidence is much lower than the prevalence detected during the first trimester in both spontaneous and elective terminations. Peaks of birth incidence have been labelled "epidemics". These reports include varying types of cases; some report only "Spina Bifida", whereas others include two or more types of neural tube defects. Several well-designed prospective studies have demonstrated an impressive reduction in the occurrence or recurrence of myelomeningocele and anencephaly following administration of folic acid beginning peri-conceptually. The birth incidence is much lower than the prevalence detected during the first trimester in both spontaneous and elective terminations (Roberts and Lowe, 1975, Creasy and Alberman, 1976; Nishimura, 1970). Chromosome anomalies are detected in up to 15% of early abortuses or by amniocentesis but less than 1% of live born patients with myelomeningocele (Luthy, 1991). The effect of folic acid fortification in North America has been reported in three epidemiological studies to be followed by a 45 to 55% reduction. The data from our clinic includes 440 births from 1981–2003 in Seattle and demonstrates an 80% reduction in the birth incidence of Myelomeningocele beginning in 1981–2000 from 0.4/1000 to 0.08/1000, a five-fold decrease. With the introduction of folic acid fortification there was an increase to 0.16/1000 in 2002, a two-fold increase. In 2003 the birth incidence fell to 0.08 again. Conclusion: Our data demonstrate the effects of intrauterine diagnosis and selective termination prior to fortification of foodstuffs with folic acid. Studies of the effect of folic acid fortification on the birth incidence of Spina Bifida Occulta in communities with a low incidence and active prenatal diagnosis and ter-