# Brief Communication

## An unusual time pattern of central nervous system anomalies in Northwestern Iran

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The occurrence of congenital anomalies varies between different countries ranging from 2-10% of births.[1] Previous studies show that CNS congenital anomalies are the most prevalent type of anomalies in some areas.[2-4] The aim of this study was to determine the time pattern, and to explore some clues to the etiology of CNS anomalies in Northwestern Iran.

The study population comprised 158433 births (156627 live births and 1806 still births) in the area covered by the Public Health Center under the Tabriz University of Medical Sciences in Northwestern Iran. Every CNS anomaly diagnosed at birth/after in this geographically defined population of Northwestern Iran was included as a study subject. We were unable to include cases that died during pregnancy because there is no routine autopsy available in the regional medical facilities. A total of 960 children with CNS anomalies were identified and studied in the region between January 2000 through December 2007. The anomalies (including anencephaly, spina bifida, and hydrocephaly) were coded and classified according the International Classification of Diseases (ICD-10). For data analysis, we used descriptive statistics, simple regression analysis, epidemiologic indices, and 95% confidence intervals (CI) using Microsoft Excel spreadsheet.

There were no significant changes in the occurrence of CNS anomalies between 2000 and 2007 ($p$>0.10). There was, however, a significant ($p$<0.05) unusual declining trend of CNS anomalies for 2006 (Incidence rate: 45.4 per 10,000 births, 95% CI: 36.4-54.5) (**Figure 1**). This is 37% less than the similar rate at the beginning of the study, and 42% less compared with the end year of the study. The highest prevalence of anencephaly and spin bifida was among females, while the highest proportion of hydrocephaly was observed in male subjects.

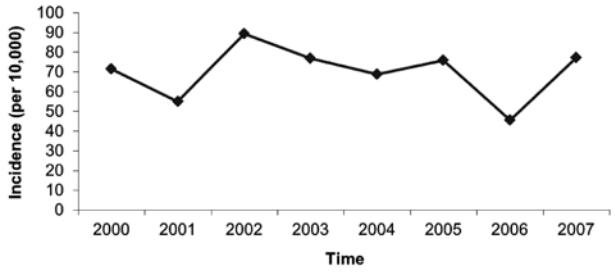


**Figure 1 -** Occurrence of CNS anomalies in Northwestern Iran.

Various rates of CNS anomalies have been reported from different parts of the world. Neural tube defects, for instance, vary from 12.6 (per 10,000 births) in Cuba, 9.59 (per 10,000 births) in Norway and 4.9 (per 10,000 births) in Hungary.[1] We investigated the occurrence of CNS anomalies in Northwestern Iran, and found an unusual time pattern. To explore the reasons for this unusual pattern, the impact of some possible factors (namely, registration, diagnosis, coding, and so forth) was carefully considered. However, the etiology of the year 2006's unusual time trend remains unclear. Although the role of some changes in environmental exposure for 2006 (namely, nutritional pattern, geographical changes, and so forth) cannot be ruled out, more studies are needed to explore the specific etiology of this unusual time pattern.

*Received 27th April 2010. Accepted 15th August 2010.*

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