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# Neural tube defects: how many cases could have been prevented in Portugal?

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## Abstract

Neural tube defects (NTD) occurs when the neural tube does not close properly until the 28th day of foetal life. About 70% of NTD can be prevent if women start folic acid (FA) before pregnancy and until the end of 1st trimester. Portugal has this primary prevention since 1998, however the secondary prevention of NTD with TOPFA is still high (80%). The aim of this study is to describe when FA intake was started and estimate the number of cases that would have be prevented if FA intake started before pregnancy as recommended.

A cross-sectional study using data from the National Registry of Congenital Anomalies between 2004-2017 was performed. The temporal evolution of the beginning of FA intake was analysed with Cochran-Armitage test for proportions. The proportion of preventable cases was estimated considering the 70%

prevention fraction and the number of NTD cases registered in RENAC that occurred in pregnancies without the recommended FA supplementation.

On average, 13.8% of all women started FA before pregnancy, 46.2% during 1st trimester and 6.1% did not take folic acid. A statistically significant trend ( $p < 0.001$ ) was observed in the group that started before pregnancy with increase from 6.8% in 2004 to 17.9% in 2017. The prevalence of NTD was 4.2 cases / 10,000 births, ranging from 2 cases / 10,000 births (2007) to 7 cases / 10,000 births (2014). Between women who had a pregnancy with NTD, 16.8% started FA before pregnancy, 42.2% in the 1st trimester and 9.7% did not take the supplement. If all women had started FA before pregnancy, an estimated 202 NTD cases could have been prevented.

In Portugal, the proportion of women who adhere to this measure is very low, similarly to other European countries, compromising the primary prevention of NTD. Perhaps due to the high percentage of TOPFA, the idea that this anomalies continue to affect our children has been lost. Primary prevention of NTDs should be encouraged with measures that promote FA supplementation.

## Key messages

- Primary prevention of NTD is possible.
- Proportion of women who adhere to primary prevention is low.

## Topic:

- pregnancy
- primary prevention
- congenital abnormality
- folic acid
- child
- fetus
- neural tube defects
- portugal
- pregnancy trimester, first
- secondary prevention
- birth
- prevention