

Vitamin Supplementation in the Prevention of Neural Tube Defects

One of a series of fact sheets produced by the Family Support Service

Introduction

One of the first parts of the body to develop is the central nervous system. The neural tube, from which the spinal cord and brain develop, is formed within the first 25 days of pregnancy. Spina bifida is caused by the failure of the neural tube to develop properly, hence the term 'neural tube defects' (NTDs).

Why does the neural tube develop incorrectly?

The causes are not yet known and are thought to be connected with both genetic and environmental factors. If a couple have had one affected child, the risk of recurrence in another pregnancy is calculated at about 1 in 25.

What has research shown?

Research on the addition of folic acid (vitamin B9) to the diet has shown conclusively that women who have had a pregnancy affected by a neural tube defect can reduce their chances of having a second affected pregnancy - by a dramatic 72%.

In April 1983 the Medical Research Council began a clinical trial of folic acid and other vitamin supplements in the prevention of neural tube defects.

The trial was conducted at 33 centres in seven countries and the results were announced in July 1991. The dose given to women taking folic acid by itself was 4 mg a day.

The women recruited to the trial and each child born during the trial were checked for possible adverse effects. The infants continued to be monitored until their third birthday. As yet no ill effects caused by folic acid supplements have been reported in either the mothers or their babies.

What does this mean in practice?

These results show that, by taking a daily folic acid supplement, a woman can reduce the risk of having another pregnancy affected by a neural tube defect. Women considered to be at higher risk include those who have had a previously affected pregnancy, those who have an NTD themselves, and those who

have a family history, or whose partner has a family history, of NTDs.

Women in these higher risk groups should take a daily 5 mg tablet of folic acid for at least one month before conception and then throughout the first 12 weeks of pregnancy. These 5 mg tablets have to be obtained on prescription from a doctor.

At present the only tablets available on prescription in the United Kingdom contain 5 mg of folic acid. Some doubts remain that this dosage may be larger than necessary for preventative effect and it is 1mg larger than the amount used in the Medical Research Council trial. The Chief Medical Officer says a 4 mg tablet will replace 5 mg as soon as this dosage is available.

Women who have not been identified as being in a high-risk group may also benefit from taking folic acid tablets. These are available in lower dosage 0.4 mg tablets, found among the vitamin displays in pharmacies and health food shops. Again, these should be taken for at least one month before conception and then until the end of the first 12 weeks of pregnancy.

Women in families where there has been spina bifida in other relatives may wish to receive genetic counselling. In these cases, they should ask their doctor to refer them to a genetic counsellor. There is a separate information sheet which discusses this more fully.

A healthy diet can help

Many studies have shown that diet is a contributory factor to the well-being of the foetus and it would seem prudent for women who are planning to become pregnant to ensure that their diet is reinforced with items in which folic acid naturally occurs. These include barley, baked beans, brewer's yeast, endive, chickpeas, green leafy vegetables, lentils, orange juice, oranges, peas, rice, soya beans, split peas, sprouts, wheat and wheat germ. Vegetables should be lightly cooked as over-boiling destroys their vitamin content. Advice to eat liver should not be heeded - liver contains

concentrations of vitamin A which, when added to vitamin A intake from other foods, can damage the unborn baby.

Some substances may affect the absorption of folic acid so, if you are taking any medication, do check this out with your doctor.

If you are on anti-convulsant medication you should consult your neurologist before taking folic acid as folic acid and some anti-convulsants can work against each other.

Folic acid supplements taken before conception can reduce the risk of neural tube defects recurring. They will not, however, guarantee the elimination of neural tube defects, such as spina bifida. SSBA remains committed to supporting people with spina bifida, and their families.

Further Information

More information about diet and vitamin supplementation can be obtained from GPs, health visitors, hospital doctors and dieticians.

If you have any questions or would like further information, please do not hesitate to contact the Family Support Workers at:

Scottish Spina Bifida Association - Family Support Service

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