

Abstract

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Homocysteine and oxidative stress in Egyptian children with Down syndrome.

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OBJECTIVE: To assess homocysteine, folic acid and vitamin B12, trace element levels and oxidant/antioxidant status in Down syndrome (DS) mothers and children.

DESIGN AND METHODS: 42 mothers with previous history of bearing DS baby with karyotypically confirmed full trisomy 21 were included. 48 healthy mothers with their healthy children were considered as control. Serum B12, folic acid, total homocysteine (tHcy), vitamins E and C, TBARS and trace elements were estimated.

RESULTS: DS mothers showed higher levels of tHcy, lower levels of folic acid and vitamin B12 than controls. tHcy and folic acid concentrations were significantly decreased, while vitamin B12 exhibited a slight decrease in DS children versus control. Vitamins E and C, zinc and copper levels were markedly reduced in DS mothers. By contrast, TBARS showed significant elevation in them. Furthermore, DS children had severe reduction of vitamin C and zinc levels relative to healthy children. However, vitamin E showed slight reduction and TBARS displayed a slight rise in DS children.

CONCLUSION: Abnormal folic acid-homocysteine metabolism is a potent marker to identify women at risk for having DS child and it also exposes them to oxidant/antioxidant imbalance.

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