Chlorella and Dioxins

Reducing dioxins in pregnant women

Chemosphere. 2005 Dec;61(9):1244-55. Epub 2005 Jun 27.

Maternal-fetal distribution and transfer of dioxins in pregnant women in Japan, and attempts to reduce maternal transfer with Chlorella (Chlorella pyrenoidosa) supplements.

Nakano S, Noguchi T, Takekoshi H, Suzuki G, Nakano M.

Saiseikai Nara Hospital, 4-chome, 8-jyo, Nara, Nara 630-8145, Japan.
htakekoshi@sunchlorella.co.jp

Dioxins can be transferred from mother to fetus via the placenta, or to
Nursing infants via breast milk, potentially causing developmental health problems in children. To assess pediatric health risks from dioxins, exposure of mothers and children to dioxins must be clarified. Methods of reducing maternal transfer of dioxins should also be investigated. Concentrations of 28 dioxin (polychlorinated dibenzo-p-dioxins, polychlorinated dibenzofurans, and co-planar polychlorinated biphenyls) congeners in blood, adipose tissue, breast milk, cord blood and placenta collected from 44 pregnant Japanese women were measured.

In addition, to investigate potential reductions in maternal transfer of dioxins, 23 pregnant women were instructed to take Chlorella pyrenoidosa supplements during pregnancy. Correlations were observed between dioxin total toxic equivalents (total TEQ) in blood and total TEQ in adipose tissue ($r=0.913$, $P<0.0001$), breast milk ($r=0.695$, $P=0.0007$), and cord blood ($r=0.759$, $P<0.0001$).

Dioxin levels transferred to fetuses and nursing infants reflect cumulative maternal concentrations of dioxins. A linear regression equation was introduced to predict total TEQ in breast milk and cord blood from dioxin levels in maternal blood, which should prove useful in evaluating fetal and infant risk of dioxin exposure. Total TEQ in cord blood were approximately 26% lower than in maternal blood ($P<0.0001$). The results of this study suggest that transplacental transfer differs depending on the dioxin congener. Total TEQ in breast milk were approximately 30% lower in the Chlorella group than in controls ($P=0.0113$).

This finding suggests that maternal transfer of dioxins can be reduced using dietary measures such as Chlorella supplement