

Curcumin reduces high glucose-induced NTDs in mice embryos

June 17 2015



(HealthDay)—Curcumin appears to reduce high glucose-induced neural tube defect (NTD) formation by blocking cellular stress and activation of caspases, according to an experimental study published in the June 4 issue of the *American Journal of Obstetrics & Gynecology*.

Yanqing Wu, from Fujian Normal University in Fuzhou, China, and colleagues examined whether curcumin treatment can reduce high glucose-induced NTDs. They collected embryonic day 8.5 [mouse embryos](#) for use in whole-embryo culture under normal (100 mg/dL) or high (300 mg/dL) glucose conditions, with or without curcumin treatment. Various protein levels were assessed in embryos after 24 hours in culture. Embryos were examined for evidence of NTD formation after 36 hours in culture.

The researchers found that the rate of NTDs caused by high glucose was

not significantly reduced with 10 $\mu\text{mol/L}$ curcumin, but 20 $\mu\text{mol/L}$ curcumin significantly ameliorated formation of high glucose-induced NTDs. Under high-glucose conditions, curcumin suppressed oxidative stress in embryos. Treatment correlated with reductions in the levels of the lipid peroxidation marker, 4-hydroxynonenal, nitrotyrosine-modified protein, and lipid peroxides. In addition, curcumin blocked endoplasmic reticulum stress and abolished caspase 3 and 8 cleavage in embryos cultured under high-glucose conditions.

"Further investigation will be needed to determine if the experimental findings can translate into clinical settings," the authors write.

More information: [Abstract](#)
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Citation: Curcumin reduces high glucose-induced NTDs in mice embryos (2015, June 17)
retrieved 5 June 2024 from
<https://medicalxpress.com/news/2015-06-curcumin-high-glucose-induced-ntds-mice.html>

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