Estimation of choline intake from 24 h dietary intake recalls and contribution of egg and milk consumption to intake among pregnant and lactating women in Alberta

Erin D. Lewis, Fatheema B. Subhan, Rhonda C. Bell, Linda J. McCargar, Jonathan M. Curtis, Rene´ L. Jacobs, Catherine J. Field* and the APrON team

Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, Canada T6G2E1
(Submitted 28 August 2013 – Final revision received 30 January 2014 – Accepted 5 February 2014 – First published online 8 April 2014)

Abstract

Despite recommendations for higher choline intakes during pregnancy and lactation, there is limited research regarding maternal intake during these important periods. In the present study, we estimated dietary choline intake during pregnancy and lactation in a population of Albertan women and the contribution of egg and milk consumption to intake. Dietary intake data were collected from the first 600 women enrolled in a prospective cohort study carried out in Alberta, Canada. During the first and/or second trimester, the third trimester and 3 months postpartum, 24 h dietary intake recall data were collected. A database was constructed including foods consumed by the cohort and used to estimate dietary choline intake. The mean total choline intake value during pregnancy was 347 (SD 149) mg/d, with 23% of the participants meeting the adequate intake (AI) recommendation. During lactation, the mean total choline intake value was 346 (SD 151) mg/d, with 10% of the participants meeting the AI recommendation. Phosphatidylcholine was the form of choline consumed in the highest proportion and the main dietary sources of choline were dairy products, eggs and meat. Women who consumed at least one egg in a 24 h period had higher (P,0·001) total choline intake and were eight times more likely (95% CI 5·2, 12·6) to meet choline intake recommendations compared with those who did not consume eggs during pregnancy. Women who reported consuming $500 ml of milk in a 24 h period were 2·8 times more likely (95% CI 1·7, 4·8) to meet daily choline intake recommendations compared with those consuming, 250 ml of milk/d during pregnancy. Choline intake is below the recommendation levels in this population and the promotion of both egg and milk consumption may assist in meeting the daily choline intake recommendations.

Key words: Choline; Pregnancy; Lactation; Dietary intakes