

## FLUORIDE IN HUMAN BREAST MILK

The 2006 National Research Council (NRC) report *Fluoride in drinking water: a scientific review of EPA's standards* notes that measured fluoride ion (F) levels in samples of human breast milk are very low.<sup>1</sup> The mean values reported were 0.0053 mg F/L in colostrum (Spak et al. 1983 with 0.2 mg F/L in drinking water), 0.0068 mg F/L in colostrum (Spak et al. 1983 with 1.0 mg F/L in drinking water), 0.007 mg F/L in mature milk (Spak et al. 1983 with 1.0 mg F/L in drinking water), 0.0044 mg F/L in mature milk (Dabeka et al. 1986 with nonfluoridated communities), 0.0098 mg F/L in mature milk (Dabeka et al. 1986 with 1.0 mg F/L in drinking water), 0.033 mg F/L, range 0.011–0.073 mg F/L in mothers' milk (Opinya et al. 1991 with a mean intake of 22.1 mg F/day from drinking water), and 0.0046±0.0025 (mean±SD) mg F/L, range 0.002–0.01 mg F/L in breast milk (Hossny et al. 2003 with 0.3 mg F/L in drinking water). Even at very high F intakes by mothers of up to 22.1 mg F/day, breast milk still contained very low concentrations of F compared with other dietary F sources with, for all the studies quoted, means of 0.0044–0.033 mg F/L and a range of 0.002–0.073 mg F/L.

In contrast, a paper in the present issue by Poureslami et al.<sup>2</sup> found the mean amount of F in the breast milk of mothers with dental fluorosis and children with dental fluorosis, in the high altitude (>2000 m) city of Koohbanan, Iran, was 0.550 mg F/L (ppm) which is 16.7 times higher than the highest mean value of 0.033 mg F/L found in the NRC review. The mean level of F in the breast milk in the control group of mothers in Koohbanan who did not have dental fluorosis and had children without dental fluorosis was 0.006 mg F/L, which is within the usual range for means reported in the NRC report of 0.0044–0.033 mg F/L and the same as the level found by Şener et al., in 2007 in Turkey, of 0.006±0.002 mg F/L.<sup>3</sup>

Although Campus et al. also found, in 2014 in Italy, a similar high breast milk F value of 0.515 mg F/L in mothers given a F supplement, they also measured a high level of 0.476 mg F/L in a control group and considered that their high values were probably related to the F measurement method they used.<sup>4</sup> Thus, the normal F level in the control group of Poureslami et al. of 0.006 mg F/L<sup>2</sup> suggests that the high value of 0.550 mg F/L they found in the mothers with fluorosis is not due to a technical error and raises the possibility that there is more to understand about the factors affecting the level of F in breast milk such as the effect of altitude.

### REFERENCES

- 1 National Research Council. Fluoride in drinking water: a scientific review of EPA's standards. Washington, DC: National Academies Press; 2006. pp. 33-6 and 71-2.
- 2 Poureslami H, Khazaeli P, Mahvi AH, Poureslami K, Poureslami P, Haghani J, Aghaei M. Fluoride level in the breast milk in Koohbanan, a city with endemic dental fluorosis. *Fluoride* 2016;49(4 Pt 2):485-94.
- 3 Şener Y, Tosun G, Kahvecioğlu F, Gökalp A, Koç H. Fluoride levels of human plasma and breast milk. *Eur J Dent* 2007;1(1):21-4.
- 4 Campus G, Congiu G, Cocco F, Sale S, Cagetti MG, Sanna G, et al. Fluoride content in breast milk after the use of fluoridated food supplement: a randomized clinical trial. *Am J Dent* 2014;27(4):199-202.