Measuring Multiple Etanercept Levels in the Breast Milk of a Nursing Mother with Rheumatoid Arthritis

To the Editor:

A recent report of declining etanercept levels in infant serum postpartum and negligible amounts in breast milk suggested that etanercept may be a safe treatment option for postpartum patients with rheumatoid arthritis (RA)[1]. Limited data exist detailing breast milk concentrations of etanercept at 25 mg and 50 mg doses over a longer period of time. We describe levels of etanercept in breast milk of an RA nursing mother performed at her request.

A 34-year-old etanercept-naive mother with RA delivered a healthy 3.4 kilogram female infant full-term with no abnormalities or complications, maintaining remission throughout pregnancy. She developed early signs of RA flare 3 months postpartum, choosing etanercept under informed consent, recognizing that she planned to breastfeed for at least another 3 to 4 months and was considering another pregnancy within the year, thereby limiting her DMARD options. She initially started etanercept 25 mg subcutaneously (SC) twice a week but switched to 50 mg SC weekly etanercept for convenience. Six samples of breast milk were collected over a 2-month period. Breast milk samples were sent to Sanquin Laboratories in Amsterdam and ELISA was performed quantifying etanercept levels through anti-etanercept antibodies[2]. Maternal and infant serum levels were not determined.

Levels for etanercept at 25 mg SC twice a week and 50 mg SC weekly are shown in Table 1. The control sample of breast milk prior to any etanercept exposure was < 1.5 ng/ml. Average volume of breast milk per sample was 60 ml. Therefore, the highest concentration of etanercept was measured 72 hours post-etanercept 50 mg at 7.50 ng/ml (450 ng assuming 60 ml volume).

These samples confirm the negligible amount of etanercept excreted in the breast milk in a nursing mother with RA, similar to findings of Ostensen, *et al*[3] and Murashima, *et al*[1] of minimum amounts of etanercept in breast milk. Murashima's recent report confirmed that at 12 weeks postpartum, breast milk etanercept levels were 3.5 ng/ml, similar to the negligible amounts found in our study. Moreover, these small concentrations did not appear in the infant's serum, suggesting lack of transfer in breast milk. Our findings also show that at the 2 available doses of etanercept, peak levels were still extremely low, occurring 72 hours after 50 mg of etanercept.

Table 1. Breast milk concentrations of etanercept at 25 mg and 50 mg dosing.

Etanercept Dose, mg	Time of Collection	Etanercept Concentration, ng/ml
25	Immediately preinjection	< 1.5 (control)
25	24 h postinjection	4.48
50	Pre-1st 50 mg injection and 48 h post-25 mg injection	5.25
50	24 h postinjection	4.48
50	72 h postinjection	7.50

Our data confirm that etanercept levels in breast milk are extremely low, providing reassurance to rheumatologists who are tempted to encourage high-risk patients to start or reinitiate etanercept while breast feeding.

Limitations of these data include low numbers of patients and lack of standardization of the assay across different laboratories, particularly in breast milk. Ideally, our data would have included infant serum levels of etanercept to confirm the theory that any existing etanercept is destroyed by the infant's gastric secretions. The mother stopped nursing at 6 months and the child remains healthy at 3 years of age.

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