

## Abstract

# Maternal Plasma Selenium and the Occurrence of Infection Symptoms among Women at Six and Twelve Months Postpartum <sup>†</sup>

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**Abstract:** Selenium is essential for human health because it produces selenoproteins, which have antioxidant and anti-inflammatory roles. Recently published data have suggested high selenium status (high hair selenium concentration) improved outcomes in patients with COVID-19 infections. Our objective was to investigate the occurrence of infectious symptoms and selenium status among postpartum women. This is a secondary analysis of data collected in the Mother and Infant Nutrition Investigation—an observational, longitudinal cohort study spanning the first postpartum year of mother and infant pairs ( $n = 87$ ) in Palmerston North, New Zealand. Plasma selenium was measured in women at six months postpartum (6MPP), and the validated Carr Infection Symptom Checklist (CISC) measured the type and frequency of infection symptoms experienced at 6MPP and twelve months postpartum (12MPP). The checklist contains 30 symptoms of infection; each symptom is scored from 0 (no symptoms) to 4 (severe symptoms), thus the possible total score ranges from zero to 120. The data were expressed as the median (q25, q75). The median maternal plasma selenium was 105.8 (95.6, 115.3)  $\mu\text{g/L}$ , with 41% of women meeting the criteria for the maximum expression of selenoprotein P ( $>110 \mu\text{g/L}$ ). The median CISC scores were 12 (8, 18) at 6MPP and 13 (8, 21) at 12MPP, which were weakly correlated ( $r = 0.363$ ,  $p = 0.002$ ). Plasma selenium levels among women with a low CISC score  $\leq 15$  ( $n = 56$ ) at 6MPP were significantly higher (110.05  $\mu\text{g/L}$ ) than those women with a high score of symptoms of infection (score  $> 15$ ,  $n = 23$ ) at 102.18  $\mu\text{g/L}$  ( $p = 0.048$ , Mann–Whitney U test). Further research is warranted to investigate whether higher plasma selenium levels contribute to a lower rate of maternal infection during the postpartum period. The association between wider selenium biomarkers and maternal immune function should be determined by examining inflammatory markers or immunoglobulin concentrations.

**Keywords:** symptoms of infection; postpartum women; plasma selenium

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