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Abstract

The Effects of Therapeutic Ultrasound on Breastmilk Composition: A Quasi-Experimental Pre-Post Design Study †

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Abstract: Therapeutic ultrasound (TUS) is the most commonly used physiotherapy treatment for inflammatory conditions of the lactating breast (ICLB) which can affect up to 33% of post-partum women. There is no literature on whether the thermal effect of TUS alters breastmilk composition. The aim of this quasi-experimental study was to determine the effect of therapeutic ultrasound (TUS) on the pre–post-session protein, fat and lactose concentration of breastmilk. During a single session conducted in an enclosed room within the community in Perth, Western Australia, TUS was applied for 10 min to the right breast. Pre- and post-TUS 5 mL expressed breastmilk samples were collected. The main outcome measured was concentration of breastmilk protein (g/L), fat (%) and lactose (g/L) before and after application of TUS. There was a significant increase in breastmilk fat concentration between measures taken pre- and post-TUS (mean difference, 1.36%; 95% CI [0.97, 1.75], $p < 0.001$). There was no significant difference in breastmilk protein (mean difference, −0.64; 95% CI [−1.93, 0.64], $p = 0.328$) or lactose concentration (mean difference, −4.77; 95% CI [−11.57, 2.03], $p = 0.169$) between measures taken pre- and post-TUS. In conclusion, TUS applied to the healthy lactating breast does not adversely affect the protein, fat or lactose concentrations of breastmilk. The results of this study support the use of TUS as a safe treatment option for mothers suffering from ICLB.

Keywords: breastfeeding; mastitis; physiotherapy; treatment; breastmilk; lactation; therapeutic ultrasound; breastmilk composition

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