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Cytokine Changes of Auricular Point Acupressure to Manage Aromatase Inhibitor-Induced Arthralgia in Postmenopausal Breast Cancer Survivors

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Abstract : Background: Current management of aromatase inhibitor-induced arthralgia (AIA) in postmenopausal breast cancer survivors (PBCS) has limited effect. Method: In this prospective randomized clinical trial (RCT), a 4-week APA treatment was used to manage AIA. Twenty PBCS participated. After baseline data was collected, participants were waited for a month before they receive APA at a convenient time once a week for 4 weeks. Blood samples from participants in both groups were collected at baseline and after 4 weeks of treatment. The primary outcomes included: pain intensity, pain interference, stiffness, and physical function. Results: After the 4-week APA treatment, the pro-inflammatory cytokines and chemokines display a trend of mean percentage reduction (i.e., -22% in IL-1α, -4% in IL-1β, -1% in IL-2, -3% in IL-6, -19% in IL-12, -9% in Eotaxin, and -2% in MCP-1). The anti-inflammatory cytokine IL-10 and IL-13 (i.e., 5% in IL-10 and 29% in IL-13) increased from pre- to post-APA treatment. Significant positive correlation of percentage mean change was observed between symptom severity and eotaxin ($\rho = 0.56$; $p < 0.01$) & MCP-1 ($\rho = 0.65$; $p < 0.01$). Interference and chemokines (eotaxin & MIP-1) also shows positive correlation ($\rho = 0.48$; $p < 0.01$ & $\rho = 0.39$; $p < 0.05$). Another positive correlation was found between worst pain and chemokines (eotaxin, $\rho = 0.48$; $p < 0.01$ & MIP-1, $\rho = 0.39$; $p < 0.05$). Additionally, interference also shows positive correlation among IL-1α ($\rho = 0.36$; $p < 0.05$) and IL-β ($\rho = 0.33$; $p < 0.05$). Conclusion: These findings suggest that APA intervention may inhibit inflammation of AIA patients and chemokine could be one of the key factors of AIA symptom improvement.

Keywords : acupressure, cytokine, pain management, breast cancer survivors
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