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Commentary

Complementary Therapy in Enhancing White Blood Cell Recovery after Cancer Therapy

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DESCRIPTION

Leukopenia is a common complication in patients receiving chemotherapy or radiotherapy. A reduction in white blood cell count can compromise immune defense, increase infection risk and affect the ability to maintain planned cancer treatments. Managing leukopenia is therefore an important aspect of supportive care in oncology. Pharmacologic approaches such as granulocyte colony-stimulating factor are widely used, but complementary therapies have gained attention. Acupuncture, a traditional therapy involving needle stimulation at specific points, is suggested to enhance hematologic recovery and improve overall treatment tolerance.

Acupuncture is part of traditional Chinese medicine and has been applied in multiple clinical settings beyond pain control, including immune modulation and hematopoietic support. Clinical observations suggest that stimulating certain points may promote recovery of white blood cells, reduce fatigue and improve tolerance to chemotherapy or radiotherapy. Despite reports supporting its use, evidence is fragmented, and systematic evaluation is needed to assess both its effectiveness and safety.

Eighteen studies with 1,456 participants were included. Twelve were randomized trials and six were controlled clinical trials. Patients had various cancer types, including solid tumors, hematologic malignancies and head-and-neck cancers. Acupuncture protocols varied, with common points including those known for immune and hematologic effects. Some studies used manual acupuncture while others applied electrical stimulation. Duration of intervention ranged from two to six weeks, often alongside chemotherapy or radiotherapy cycles.

Analysis of the data showed that acupuncture improved white blood cell counts compared with usual care or sham interventions. Patients receiving acupuncture were less likely to experience severe white blood cell suppression. Subgroup analysis suggested that electrostimulation may provide slightly greater improvement than manual acupuncture, though differences were not statistically significant. Longer duration of acupuncture treatment appeared to be associated with better outcomes, suggesting a potential relationship between treatment length and response.

Acupuncture also reduced the incidence of clinically significant infections, including febrile episodes. Some studies reported a lower need for pharmacologic stimulation of white blood cells, suggesting that acupuncture may complement standard care in supporting hematologic recovery.

Acupuncture was generally well tolerated in all included studies. Reported adverse events were mild and transient, including minor bleeding at the needle site, temporary soreness, or short episodes of dizziness. No serious adverse events attributable to acupuncture were observed and dropout rates due to adverse effects were low. These findings suggest that acupuncture can be safely integrated into supportive care for patients undergoing cytotoxic therapy.

Despite positive findings, several limitations were noted. Study quality varied, with some trials having unclear randomization or limited blinding. Sample sizes were relatively small in multiple studies, and heterogeneity in acupuncture protocols may affect reproducibility. Outcome reporting was not standardized across studies. The use of sham acupuncture controls differed between trials, which could influence the observed effect size.

Acupuncture is hypothesized to influence blood cell recovery through multiple pathways. Stimulation of specific points may activate the nervous and endocrine systems, modulate cytokine release and support bone marrow function. Electrical stimulation may enhance these effects by improving microcirculation and promoting communication between the nervous and immune systems. Experimental studies in animals show increased proliferation of blood cell progenitors and reduced oxidative stress in bone marrow following acupuncture intervention.

Leukopenia often limits chemotherapy and radiotherapy dosing, which can reduce treatment effectiveness. If acupuncture can

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improve white blood cell counts and reduce severe suppression, patients may better tolerate their cancer treatments. The favorable safety profile further supports its use as a complementary therapy. Acupuncture could be implemented alongside standard interventions to enhance patient outcomes and overall treatment adherence.

Future research should include larger, well-designed randomized trials with standardized acupuncture protocols and longer follow-up periods. Comparative studies against pharmacologic interventions and evaluations of cost-effectiveness would provide additional insight. Standardizing outcome reporting, such as absolute blood cell counts and incidence of infections, will strengthen the evidence base and allow better comparison across studies.

In conclusion available evidence indicates that acupuncture may enhance recovery of white blood cells and reduce the incidence of severe leukopenia in patients undergoing chemotherapy or radiotherapy. The therapy is safe, with minimal adverse effects and may serve as a complementary approach alongside standard supportive care. While variations in study quality and treatment protocols exist, the overall findings support consideration of acupuncture for patients at risk of treatment-related leukopenia.