

Effects of Chamomile Essential Oil on Granulocyte Count In Patients with Neutropenia

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Abstract

Introduction

Neutropenia is an abnormality in neutrophil count which lessens to lower than 1500 / microL ($<1.5 \times 10^9/L$). Early recognition and treatment are needed in neutropenia cases. *Matricaria chamomilla* (chamomile) belongs to *Asteracea* family which often is referred as "star among medicinal species". Recently, valuable effects of chamomile in multitherapy, cosmetics and nutrition has been published in several papers. The phytochemical analysis exhibited flavonoids, essential oils, cumarins and sesquiterpene lactones derivatives like matricin and chamazulene in the plant. The aim of this research wasevaluation of chamomile essential oil on granulocyte count in patients with neutropenia.

Methods and Results

Essential oil of chamomile was collected consecutively via Clevenger method. 85 people were participated in the clinical trial and divided into three groups. 15 healthy people as control group received chamomile drop, 35 neutropenia patients induced by chemotherapy received chamomile drop as treatment group and 35 neutropenia patients induced by chemotherapy did not receive the drop as non-treated group. Blood sampling was done at the time of the admission and every other day for 10 consecutive days after chamomile drop consumption. Granulocytes, polymorphonuclear cells (PMNs) and white blood cells (WBC) were counted after every sampling. The average of WBC, PMNs and granulocytes numbers were significantly raised in control and treatment group with $P < 0.05$ $90 \pm 11 / 3520 \pm 611$, $1.14 \pm 0.83 / 17.37 \pm 22.8$ and $150 \pm 0.07 / 1537 \pm 305$, respectively. In non-treated group the WBC, PMNs and granulocyte were 40 ± 72 , 7.91 ± 22.96 and 190 ± 48 , respectively.

Conclusion

Consumption of chamomile drop significantly increased the level of WBC, PMNs and granulocyte in control and treatment groups in comparison to non-treated group. As the result, chamomile essential oil could be considered as an adjuvant in neutropenia or other immune system deficiencies.

Key words

Matricaria chamomilla, Neutropenia, PMNs, granulocyte, matricin