

EFFICACY OF ANKAFERD BLOOD STOPPER IN PROPHYLAXIS AND TREATMENT OF ORAL MUCOSITIS IN PEDIATRIC MALIGNANCIES: A PILOT STUDY

Turkan PATIROGLU, Nagihan Erdog SAHIN, Ekrem UNAL, Musa KARAKUKCU, Mehmet Akif OZDEMİR

Erciyes University Medical School, Department of Pediatric Hematology, Kayseri-Turkey

Background

In the last 30 years, great advances have been achieved in the treatment of childhood cancers with the development of new therapeutic modalities. However, adverse events such as toxicity due to chemotherapy (CT) have continued to be a major problem (1). The main target of the mucosal toxicity resulting from CT regimens is oral mucosa. Oral mucositis occurs in 52-80 % of children who are treated for cancer and is one of the most common complications (2). Ankaferd blood stopper (ABS) is a herbal product which is used as a hemostatic agent (3). Recent studies have shown that ABS has antimicrobial efficiency, anti-inflammatory efficiency and a positive effect on the healing of tissue damage, as well (4-5). In the present study, we aimed to investigate the efficacy of ABS in the prophylaxis and treatment of oral mucositis in pediatric patients to be treated with CT due to hematologic and solid organ malignancies.

Materials and methods

Twenty-two patients (the age of 6-17 years) who were scheduled for CT with potentially high mucotoxic side effects were enrolled in this study. One patient did not receive CT upon the request of the parents and two patients were excluded from the study due to incompatibility of treatment of oral mucositis. This study is an open-label, controlled and randomized trial. For 10 days starting from the first day of the onset of CT, patients did a gargle with 3-4 ml of the liquid form of ABS four times a day in addition to standard oral care. Patients also performed standard oral care without the use of ABS for 10 days in the second cycle of the same chemotherapeutic regimen. At the end of the chemotherapy cycles, oral mucosa was assessed on a daily basis according to the World Health Organization's assessment scales for oral mucositis (Table 1) (6).

Table 1. World Health Organization (WHO) scale for oral mucositis

Grade 0	No oral mucositis
Grade 1	Erythema and Soreness
Grade 2	Ulcers, able to eat solids
Grade 3	Ulcers, requires liquid diet (due to mucositis)
Grade 4	Ulcers, alimentation not possible (due to mucositis)

Results

A total of 19 patients were enrolled in the study. Five patients were suffering from a relapse of acute lymphoblastic leukemia (ALL), four of them had osteosarcoma, four had Ewing's sarcoma, two had Burkitt's lymphoma and four patients had non-Hodgkin's lymphoma. When we compared the ABS plus standard oral care cycle with the standard oral care cycle alone, oral mucositis was significantly lower in the former in 14 patients. In four patients, there was no significant difference in oral mucositis between the standard oral cycle and ABS plus standard oral care. Only in one patient was oral mucositis higher in the ABS plus standard oral care cycle than in the standard oral care cycle. This patient was followed-up because of other adverse events including toxic hepatitis and febrile neutropenia. In four patients, reversible color changes were observed on the teeth.

Discussion

Several protective mechanisms and treatment modalities have been demonstrated against oral mucositis. However, significant improvement has not been demonstrated yet. There are no data in the literature regarding the beneficial effects of ABS on oral mucositis in the CT treatment period. In several in vivo and in vitro studies, it has been demonstrated that ABS has a positive effect on tissue regeneration due to its ability to increase cellular/vascular proliferation. In addition, the anti-inflammatory and antimicrobial effects of ABS have been demonstrated (4,5).

Table 2. Grades of oral mucositis in patients during diagnosis and chemotherapy

DIAGNOSIS	1.cycle (ABS + SOC)	2.cycle (SOC)
Relapse Acute Lymphoblastic Leukemia	Grade 1	Grade 2
Relapse Acute Lymphoblastic Leukemia	Grade 1	Grade 3
Relapse Acute Lymphoblastic Leukemia	Grade 2	Grade 2
Relapse Acute Lymphoblastic Leukemia	Grade 2	Grade 3
Relapse Acute Lymphoblastic Leukemia	Grade 2	Grade 3
Ewing's sarcoma	Grade 2	Grade 4
Ewing's sarcoma	Grade 1	Grade 1
Ewing's sarcoma	Grade 0	Grade 1
Ewing's sarcoma	Grade 2	Grade 3
Osteosarcoma	Grade 0	Grade 2
Osteosarcoma	Grade 1	Grade 3
Osteosarcoma	Grade 2	Grade 2
Osteosarcoma	Grade 3	Grade 2
Burkitt's Lymphoma	Grade 2	Grade 3-4
Burkitt's Lymphoma	Grade 1	Grade 3
Non-Hodgkin's Lymphoma	Grade 1	Grade 2
Non-Hodgkin's Lymphoma	Grade 1	Grade 1
Non-Hodgkin's Lymphoma	Grade 1	Grade 2
Non-Hodgkin's Lymphoma	Grade 2	Grade 3

ABS: Ankaferd Blood Stopper, SOC: Standard Oral Care

We were inspired by the reported benefits of ABS on tissue regeneration and so planned this trial involving the use of ABS for the prevention and treatment of oral mucositis in patients with malignities who received CT. In 14 patients out of 19, oral mucositis showed regression with ABS and accordingly we believe that ABS can be used in the prevention and treatment of oral mucositis in patients with malignities who received CT. However, further studies should be conducted in order to demonstrate more conclusive results.

Conclusion

There is no existing evidence about the role of ABS in the treatment of oral mucositis; however ABS may be considered as a beneficial treatment modality. In the preliminary results of the present ongoing study, ABS demonstrated beneficial effects on oral mucositis. In order to introduce ABS into routine oral care protocols, large multi-center randomized cohort trials should be conducted.

References

- Zerbe MB, Parkerson SG, Ortlieb ML, Spitzer T. Relationships between oral mukositis and treatment variables in bone marrow transplant patients. *Cancer Nurs*. 1992 Jun;15(3):196-205.
- Cheng KK, Chang AM, Yuen MP. Prevention of oral mukositis in pediatric patients treated with chemotherapy; a randomised crossover trial comparing two protocols of oral care. *Eur J Cancer*. 2004 May;40(8):1208-1216.
- Beyazıt Y, Kurt M, Kekilli M, Goker H, Haznedaroğlu IC. Evaluation of hemostatic effects of Ankaferd as an alternative medicine. *Altern Med Rev*. 2010 D15(4):329-36. Review.
- Tasdelen Fisgin N, Tanrıverdi Cayci Y, Coban AY, Ozatlı D, Tanyel E, Durupinar B, Tulek N. Antimicrobial activity of plant extract Ankaferd Blood Stopper. *Fitoterapia*. 2009 Jan;80(1):48-50.
- Işler SC, Demircan S, Cakarar S, Cebi Z, Keskin C, Soluk M, Yüzbaşıoğlu E. Effects of folk medicinal plant extract Ankaferd Blood Stopper on early bone healing. *J Appl Oral Sci*. 2010 Jul-Aug;18(4):409-14.
- Nicola P, Romani C, Cupelli L, Scaramucci L, Tendas A, Dentamaro T, Amadori S, de Fabritiis P. Mucositis in patients with hematologic malignancies: an overview. *Haematologica*. 2007 Feb;92(2):222-31. Review.