A Placebo Control Study of the Effect of Nigella Sativa Fixed Oil on the Healing Rate of Recurrent Aphthous Ulceration

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Summary:

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Background *Nigella sativa has an antibacterial effect; it produced also a marked antifungal, anticestodal and antinematodal activity besides its antiarithritic, analgesic, antiseptic, antiviral and too many other activities.*
Objective *To show the effect of Nigella sativa fixed oil on the healing rate of RAU.*
Materials and Methods: *Forty patients with RAU having no other systemic manifestations were included in this study.*
Those patients were divided into two groups of 20 patients each. The first group was treated by Nigella sativa fixed oil 10% in glycerin 3 times daily, the second group was treated with glycerin 3 times daily. All those patients were assessed by Oral Clinical Manifestation Index (OCMI).
Results: *Patients treated with Nigella sativa showed 100% cure after five days of treatment.*
Conclusion: *Nigella sativa fixed oil is a new effective topical agent for promotion of healing of recurrent oral ulceration.*

Introduction:

RAU is the most common oral mucosal diseases known to human beings [1] which could be defined as a chronic inflammatory diseases characterized by painful recurrent necrotizing ulceration of non-keratinized oral mucous membrane [2].

RAU is a manifestation of many local and general disorders and the hypotheses of its pathogenesis are numerous [3], [1]. It remains a clinical problem because there is no specific treatment and the management strategies depend on the symptoms, duration, severity and the associated systemic conditions [1]. (RAU) are classified in three categories depending on the clinical presentation of the lesion into minor, major and herpitiform [4].

There are many therapeutic trials that have been shown beneficial to relieve oral aphthosis like antibiotics, anti-inflammatory, and immunomodulators, anesthetics and alternative (herbal) remedies [5].

Nigella sativa (Nigella *sativa Linn.* "Botanical name", black cumin, black seed, seed of blessing) is a plant of genus *Nigella* from the family *Ranunculaceae* [6],[7].

In Iraq, *Nigella sativa* is the Latin name for the black cumin, a large scale analysis of the oil and its effect has been carried out in Iraq, Middle East and Europe and the result showed that this ancient oil is indeed a cure all. *Nigella sativa* was discovered in Tutankhamen's tomb, implying that it played an important role in ancient Egyptian practices [8].

The seeds of *Nigella sativa linn.* Yielded a dark brown liquid. The oil has disagreeable odor and becomes acid on standing [9].

Materials and Methods

Seeds of Nigella sativa were collected, classified, cleaned and its oil was prepared by using mechanical pressure device; Nigellla sativa oil preparation is then done by diluting the previously prepared fixed oil in glycerin in a ratio 1:10 .

Forty Iraqi patients of different age groups suffering from recurrent oral aphthosis were included in this study. Full clinical assessment, investigations and consultations to other physicians were performed to each patient to prove that they were otherwise healthy. Those 40 patients were divided into two groups, 20 patients for each. 1st group was given topical *Nigella sativa* oil preparation 3 times /day, the 2nd group was given glycerin 3 times daily. Both remedies were given for four days were they had been assessed according to the OCMI (table1) then re-assessment was conducted 4 days later.

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Table I Oral Clinical Manifestation Index

Type	
Minor ulcer	1
Herpitiform	2
Major ulcer	3
Number / attack	
1-3	1
4-6	2
7-9	3
9-12	4
More than 12	5
Duration of the attack	
1-4 day	1
5-8 days	2
9-12 days	3
More than 12 days	4
Frequency (attack/date)	
0-2 weeks	5
3-4 weeks	4
5-6 weeks	3
7-8 weeks	2
More than 8 weeks	1
SX	
Uncomfortable	1
Painful not interfere with eating or swallowing	2
Interfere with solid feeding	3
Interfere with liquid eating	4

Data were analyzed using a computer system via (Epi info) software versions 6.4.2.2 -2004. An expert statistical advice was sought for. Age and sex distributions were also analyzed. An association was considered statistically significant whenever P value was less than (0.05) level of significance.

Results

Concerning sex distribution, the males were 57.5 % of total study sample while females were 42.5 % of it.

Regarding age distribution, 30-39 years have the highest ratio among the four study groups while ages below 20 years have the least.

Concerning treatment, as examining table (2), score obtained for the patients before treatment were ranging between 12 and 21,. *Nigella Sativa* oil preparation caused significant decrease in the range of scores after 4 days of therapy where the range was between 5 and 12, further significant decrease was noted in 8 days of treatment , the records ranged between 0and 6, this indicates its effect on the cure rate of oral ulcers.

Table No. (2)The effect of therapeutic trial using Nigella sativa for the treatment of RAU (Range, Mean, ±SD of OCMI).

Nigella sativa	Oral Clinical Manifestation Index OCMI		
	Range	Mean	±SD
Before treatment	12 -21	16.75	2.33

4 days after treatment	5 -12	8.40	2.92
8 days after treatment	0 - 6	2.50	2.37
ANOVA applied	F test = 403	P value= 0.000001	

Table No. (3)The effect of therapeutic trial using Glycerin for the treatment of RAU (Range, Mean, ±SD of OCMI).

Glycerin	Oral Clinical Manifestation Index OCMI		
	Range	Mean	±SD
Before treatment	10 -21	17.00	2.82
4 days after treatment	8 -21	16.25	3.82
8 days after treatment	9 - 21	13.60	4.22
ANOVA applied	F test = 17.63	P value= 0.000001	

In table (2) glycerin was nearly of no or negligible effect in healing rate of RAU.

Discussion

RAU is the most common disease of oral mucous membrane [10]. It remains a major clinical problem for many patients [1] because no medication gives reliable relief.

Various treatment modalities have been tried [11]: Topical like gels [12], creams [4], pastes [13] ointments [14], rinses and sprays [12] and other topical applications. Systemic modalities also have been tried [12; 15].

The results of this study proved that *Nigella sativa* oil preparation has a tremendous effect on the healing rate of RAU, and this was confirmed by the control group who show no effect for glycerin which acts only as a diluting agent. This may be due to its anti-inflammatory effect which is mainly contributed to its sole active ingredient (thymoquinone) content which had been proved to possess anti inflammatory action [8]. Also its interesting effect may be related to the anti microbial effects of thymoquinon and hydrothymoquinon and other constituent of *Nigella sativa* fixed oil [9] which was proved by Al- Ani, 1998; who had used thin layer chromatography (TLC) to prove the presence of this active component which is responsible of the oil anti-inflammatory action. This compound was found in a concentration of 59.8% in the fixed oil and about 74.3% in the volatile oil [8].

To the best of our knowledge which concern our subject this was the first study that employed *Nigella sativa* oil topically in the treatment of recurrent oral ulceration. The results proved the belief about the plant *Nigella sativa*, the seed of blessing, is a cure- in- all as the Prophet Mohammad (Prayers be upon him) said.

From this study it can be concluded that *Nigella sativa* fixed oil may be a promising local therapeutic agent in treating RAU since it is naturally available, well accepted by the patients and lacks the side effects of steroids

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