A blend of organic extra virgin olive oils ameliorates atopic dermatitis and psoriasis. A pilot study

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Santiago Vidal-Asensi, MD; Vicente Pérez-Bañasco, M.D; Ramón Cisterna-Cáncer, M.D, PhD; Vicente G. Villarrubia, MD, PhD;
Author Affiliations: Service of Dermatology, Hospital Gómez Ulla and Universidad San Pablo CEU, Madrid (Dr Vidal Asensi, svidala@medynet.com), Spain Service of Nephrology, Hospital de Jaén (Dr Pérez-Bañasco, vperezb@senefro.org), Department of Immunology, Microbiology and Parasitology, Faculty of Medicine, University del País Vasco (Prof. Cisterna, RAMON.CISTERNACANCER@osakidetza.net), Department of R&D Immunology, Bioaveda (Dr Villarrubia, villarrubia@bioaveda.com).

Background:

Atopic dermatitis (AD) and psoriasis are immune/inflammatory diseases affecting mainly the epidermal barrier (EB). Common lipid and immune alterations are frequently seen in both diseases. Among them, local alterations of ceramides, cholesterol, and free fatty acids, coexist with systemic and/or local decreases of interleukin-10 (IL-10) and interferon-gamma (IFN-γ).

A standardized Formulation of organic olive oils (FOOs), when given previously per os to patients with chronic kidney disease, was able enhance high-density lipoprotein cholesterol (HDL-c) and albumin serum levels, as well as to increase IL-10 and IFN-γ serum values in these patients.

In this study we have evaluated the oral and/or topic administration of FOOs in 9 AD patients and in 3 psoriatic patients who did not respond to conventional treatments. All patients included were habitually OO consumers.

Patients, Material, and Methods

This is a pilot study in two outpatient Dermatology & Immunology clinics with adult and children who were diagnosed by history, pattern, evolution, and skin lesions. As shown in Table 1, **nine persons with DA, one with AD and psoriasis, and two with psoriasis** were initially selected for the entry to this study. Ages ranged from 6 to 74 years old, and 5 were females. Other clinical characteristics are summarized in Table 1. Patient No. 8 with AD also suffered from hand eczema, and patient No. 9 of concomitant localized plaque-psoriasis in the left elbow. Comorbidity factors were obesity in patients 8, 10 and 11, type II diabetes in cases 10 and 11, and iatrogenic Cushing syndrome in case 11. Patient No. 10 was under treatment with conventional oral antidiabetics for 2 years before the entry to this study. As absolute inclusion criteria (a) all patients should be habitually consumers of extra virgin olive oil (conventional or organic) (OO), and (b) all patients should be suffering of chronic relapsing disease in spite of treatments applied before (Table 2). All patients were informed about the main characteristics of treatments to be applied. Due to the nature of products assayed in this trial no informed consent was needed.

Formulation of organic olive oils (FOOs)

FOOs is the result of a rational combination (blend) among 3 varieties of Spanish organic olive oils (OOs). All OOs had been mechanically extracted at very cold temperatures (18° C) from Olea europaea Spanish varieties of olives. All OOs used in the Formulation came from Organic Agriculture applied to olive growths, and after oil extractions they were tested for the presence of herbicides, insecticides, and other endocrine disrupting chemicals (EDCs).

Contrary to other conventional OOs, the resultant FOOs: (a) become standardized year by year in spite of the annual harvest variations; (b) is chemically characterized by its significant lower content in natural waxes (less than 50 mg/Kg in FOOs vs >100 mg/Kg in conventional OOs); (c) is very rich in the MUFA oleic acid (OA), and also contains the natural MUFA palmitoleic acid (POA); (d) the ratio AO/PUFA (mainly linoleic acid) is lower than in any other conventional OOs; and, (e) it contains ferulic acid, carotenoids, and vitamin E, as well as high levels of other polyphenols.

Dermal products

All products for topic application were basically elaborated with the FOOs. For AD, a gel and/or a lotion containing FOOs (7% or 10%) and urea (1.75% or 5%) were used. For psoriasis, a mixture (gelified oil) of FOOs (87%), and organics wild rose oil (3%), Aloe Vera oil (5%), and bisabolol (0.5%) was used.

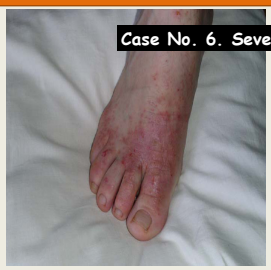

Table 1. Patient characteristics

Cases	Age in years (gender)	Time of evolution	Disease intensity	Other signs of atopy
Atopic dermatitis (AD)				
1 AD	6 (F)*	Since 1st year	Mild-moderate	Active asthma
2 AD	7 (M)*	Since 1st year	Mild-moderate	Active asthma
3 AD	11 (M)*	Since 1st year	Mild-moderate	Asthma in remission
4 AD	18 (F)#	Since 1st year	Mild-moderate	Allergic rhinitis
5 AD	55 (M)#	From infancy	Moderate-severe	No
6 AD	55 (M)	From infancy	Severe-recalcitrant	Allergic rhinitis
7 AD	36 (F)	>20 years	Severe-recalcitrant	Allergic rhinitis
8 AD	70 (M)¶	From infancy	Severe-recalcitrant	Allergic rhinitis
9 AD	45 (F)*	From infancy	Mild-moderate	Psoriasis (see case 1)
Psoriasis (P)				
9 P+AD	45 (F)	> 20 years	Localized (elbows)	AD (see case 9)
10 P	74 (M)	> 40 years	Palmoplantar	No
11 P	42 (F)	> 20 years	Generalized	No

All patients were habitually consumers of conventional olive oil from infancy, and excepting for cases 4 and 5 all patients usually applied topic conventional olive oil on lesions, but without results. F: female; M: male; * Brothers and aunt; # Father and daughter; ¶: patient with severe-recalcitrant hand eczema after 20 years.

Table 2. Previous treatments, and effects of the Formulation of olive oils (FOOs) in patients with atopic dermatitis (AD) or psoriasis (P)

Cases	Previous treatments	FOOs orally Doses: mL/day	FOOs topically (applications per day)	Cutaneous Response
ATOPIC DERMATITIS (AD)				
1 AD	E	10	No	CR
2 AD	E, OGC, TGC	15	Yes (2)	CR
3 AD	E	15	No	CR
4 AD	E	30	No	CR
5 AD	E	50	No	CR
6 AD	E, OGC, TGC, TIC	50	No	CR
7 AD	E, OGC, TGC, TIC	50	No*	PR > 75%*
8 AD	E, TGC, TIC	50	Yes (2)	CR
9 AD+P	E, OGC, TGC, TIC	50	Yes (2)	CR
PSORIASIS (P)				
9 P+AD	OGC and TGC	50	Yes	CR
10 P	OGC and TGC	50	Yes	PR > 75%
11 P	OGC and TGC	50	Yes	CR

E: emollients; OGC: oral glucocorticoids; TCT: topic glucocorticoids; TIC: topical calcineurin inhibitors; CR: Complete response (clearance of lesions and disappearance of symptoms); PR: partial response (disappearance of symptoms, while persistence of small lesions in one arm). *After reaching PR with oral FOOs, the concomitant topic application of FOOs-urea5% allowed to a CR. Quality of life significantly changed in all patients.

Discussion

To our knowledge, this is the first report showing that oral and/or topic administration of a standardized Formulation of Olive oils (FOOs) ameliorates notably AD and Psoriasis in habitually OO consumers, while provoking beneficial effects on patient´s quality of life. The FOOs ability to induce the endogenous production of potent endogenous immune/anti-inflammatory molecules (HDL, albumin, IL-10) while increasing IFN-γ, appears to be the responsible for these exciting effects in both AD and psoriasis patients. Studies on Treg cells are now been performed.

Conclusions:

(a)Oral and/or topic FOOs administration appears to be clinically useful in patients with AD or psoriasis

(b)The pathogenic features described above constitute a strong rationale for its clinical usefulness in these patients

(c)The FOOs immunomodulatory, anti-inflammatory, and metabolic activities on HDL-c, help to explain its absence of side-effects while recovering the patient's quality of life. Further clinic and immunological studies are now in progress.

References

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svidala@medynet.com

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