

Case Report

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The Treatment of Diabetic Retinopathy and Other Retinal Disorders Via Optic Orr- A Topical Innovation

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Abstract

Disorders associated with diabetes commonly include a decreased vision to blindness and cataract formation. A focus of this study was to determine a beneficial role of vitamin A applied through the principle of transdermal absorption. The objective was to avoid having systemic adverse effects. The duration of treatments was found to be optimal for 12-16 weeks. The concept of employing vitamin a was derived from a known significant role of vitamin a in visual functions in humans. The cream based topical formulation was named optic Orr (vision correction). 27 subjects were studied of both genders for a duration of 12-16 weeks and periodically visual acuity was assessed by using Snellen charts in the office or symptoms evaluations, in cases of patients with retinal injuries. The result was patients showing increased visual acuity mainly in daytime vision (cone regeneration).

Introduction

The approach of this research was inspired by several researches conducted earlier as described below. Chowers et. al [1] in 2001 had demonstrated regeneration of retina with oral doses of vitamin A. Owseley [2] and his colleagues in 2006 had established a beneficial effect of a high (oral) dose of retinol in ageing and age-related maculopathy. Mactier [3] and his group in 2012 had proven an improvement of retinal functions in infants by vitamin A supplementation orally. Berson et.al. [4] In 2012 had assessed the visual acuity increases in patients with retinitis pigmentosa receiving vitamin A. Shaberman [5] and his collaboratos in 2015 termed vitamin A as a fuel for vision. Kiser PD & Palczewski [6] had proven an association between retinoids and their impact on retinal diseases. Liu [7] and his colleagues stressed the useful role of retinoids in the same illness. She [8] and his associates in 2017 stressed the association between carotenoids and a risk of diabetic retinopathy in vitamin A deficient case. Hussain RM [9] and his colleagues in 2018 had studied pharmacotherapy of retinal diseases with visual cycle modulators. sella et al. [10]. In January 2019 had established a link between vitamin A,C,D,E and K deficiency and cataract formation. In March 2019 Aghalia E [11] and his colleagues investigated vitamin a supplementation in Nigeria in relation to childhood blindness.

Implementation of Research

Patients Selection

A primary objective was to target patients with a history of diabetes. However, a few select cases were encountered with episodes of retinal detachment resulting in severely diminished vision or retinal injuries.

Preparation of Optic Orr

Vitamin A in the form of retinyl palmitate was weighed to render a concentration as permitted by health Canada. In addition, various essential oils were added and incorporated into a lip balm base at a warmer temperature to provide a homogeneous mixture. Samples weighing 12 grams. Each were given to patients on trial and they were seen in a follow-up every 4 weeks. The mode of administration was applying the opticorr cream twice a day externally on upper and lower eye lids.

Assessments

Visual acuity changes were determined by Snellen chart and in cases of retinal injuries ophthalmological consultation was done. Results of the study are described in the enclosed table. The parameters of study considered are age of the patient, duration of diabetes the patient has endured and resolution of symptoms

(time required of treatment to see improvements in visual acuity to a near normal level) . A duration of treatment needed for a satisfactory improvement may have been dependent on the level of glycemic control i.e. Sub-optimal control would reflect a longer need of treatment. In addition, rg represents patients with retinal injuries or glaucoma and rc includes a patient with retinitis and corneal injuries.

Discussion

Optic Orr application was found to be free of any side-effects. In rare cases one may exhibit hypersensitivity by having erythema in peri-orbital region and or burning sensation. Patients were advised to discontinue using the product in those cases. However, hypersensitivity was of a rare occurrence. As described earlier the extent of treatment needed were variable. Most of the study participants demonstrated visual improvement to a near normal level in 3 to 4 months.

Cases with most remarkable improvement

- i. A 75 yrs. Old male with a history of retinal detachment 7 years earlier and resulting blindness, in spite of 4 surgeries, had seen a normal day time vision after a 4 months application of optic Orr.
- ii. A 57 years old female was diagnosed with retinal injury causing diminished vision and was scheduled for a surgery. She had a full recovery after 12 weeks of using the cream and was informed of not requiring the surgery at the end since the injury had healed.
- iii. A 70 years old male had a one-week history of diminishing vision from an acute retinal injury in one of his eyes and had experienced full relief of symptoms after using the cream for next 2 weeks.

Optic Orr is currently under a patent protection. It was initially formulated for the treatment of various forms of dermatitis (resistant to oral treatments). Antiwrinkle effects and currently recognized for glaucoma , adult macular degeneration and cataracts prevention. Our current projects are focussed on evaluating these benefits. Our recent clinical observations have been in the beneficial role of vitamin a as an immunity mediator and in cases of inflammation [12]. Further studies by Esposito and his colleagues had recognized wound healing effects of

retinyl palmitate [13] and further recognition of vitamin a in the enhancement of immune function by Huang et al. [14].

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