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FOTOAGE skin ox

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“The last aesthetics miracle”

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PHOTOBIODYNAMIC THERAPY

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(BIOLOGICAL THERAPY + PHOTODYNAMIC THERAPY)

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TERAPIA LLLT

Low-Level Laser (Light) Therapy

The 1st biophotonic customizable mask

Fotoage offers the specialist the possibility to treat several skin conditions at the same time

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Four independent treatment areas.
Flexible material that allows greater adaptability to
the curves of the face and neck

Indications | Regenerative + Melanin inhibitor +
Anti-immflamatory + Rosacea/Dermatitis + Bacteriological

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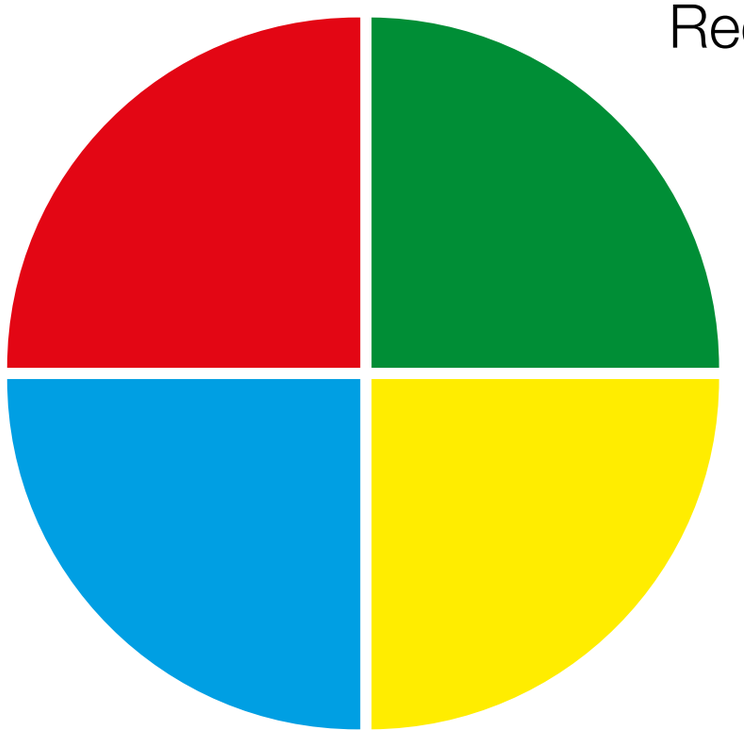
Red
Increase collagen production
Restores cellular function
It provides the essential energy
forcell renewal and nutrition

Green
Inhibits the excess of
melanin production
Reduces hyperpigmentation
Reduce redness



Blue
Bacteriological effect
Anti-inflammatory

Yellow
Blood stimulation
Improves decongestion
Stimulate production
of lymphocytes

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Wrinkles

WRINKLES CONCENTRATE

COMPOSITION

ALA (5 aminolevulinic acid hydrochloride
DMAE (dimetylaminoetanol)
MATRIXYL SYNTHE 2% (PALMITOYL TRIPEPTIDE-38)
HYALURONIC ACID

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Acne

ACNE CONCENTRATE

COMPOSITION

ALA (5 aminolevulinic acid hydrochloride
TEPEZCOUITE EXTRACT
VITAMIN B2 (riboflavin)
HYALURONIC ACID

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Dark Spots

DARK SPOTS CONCENTRATE

COMPOSITION

COLOIDAL GOLD
TRANHEXAMIC ACID
BUTILRESORCINOL
GLUTATION

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Redness

DARK SPOTS CONCENTRATE

COMPOSITION

COLOIDAL SILVER
AZELAIC ACID
CORALLINA OFFICINALIS
HYALURONIC ACID
MELATONIN

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The treatment

FASE 1 **FASE 2** **FASE 3** **FASE 4**

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Protocol

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ACNE	6 sessions	+	6 sessions
WRINKLES	4 sessions	+	4 sessions
REDNESS	8 sessions	+	8 sessions
DARK SPOTS	6 sessions	+	6 sessions

Protocol

	Microneedling	Filler	Radiofrequency	Pulsed light	Fractional laser
ACNE	No	No	No	Yes	No
WRINKLES	Yes	Yes	Yes	Yes	Yes
REDNESS	No	No	No	Yes	No
DARK SPOTS	Yes	No	Yes	Yes	Yes

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Clinical studies

LLLT

Semin Cutan Med Surg. 2013 Mar;32(1):41-52.

Low-level laser (light) therapy (LLLT) in skin: stimulating, healing, restoring.

Avci P[1], Gupta A, Sadasivam M, Vecchio D, Pam Z, Pam N, Hamblin MR.

Author information

Abstract

Low-level laser (light) therapy (LLLT) is a fast-growing technology used to treat a multitude of conditions that require stimulation of healing, relief of pain and inflammation, and restoration of function. Although skin is naturally exposed to light more than any other organ, it still responds well to red and near-infrared wavelengths. The photons are absorbed by mitochondrial chromophores in skin cells. Consequently, electron transport, adenosine triphosphate nitric oxide release, blood flow, reactive oxygen species increase, and diverse signaling pathways are activated. Stem cells can be activated, allowing increased tissue repair and healing. In dermatology, LLLT has beneficial effects on wrinkles, acne scars, hypertrophic scars, and healing of burns. LLLT can reduce UV damage both as a treatment and as a prophylactic measure. In pigmentary disorders such as vitiligo, LLLT can increase pigmentation by stimulating melanocyte proliferation and reduce depigmentation by inhibiting autoimmunity. Inflammatory diseases such as psoriasis and acne can also be managed. The noninvasive nature and almost complete absence of side effects encourage further testing in dermatology.

Clinical studies

LLLT

Lasers Med Sci. 2013 Nov;28(6):1573-9. doi: 10.1007/s10103-013-1281-x. Epub 2013 Feb 10.

In vivo and in vitro analysis of low level light therapy: a useful therapeutic approach for sensitive skin.

Choi M[1], Kim JE, Cho KH, Lee JH.

Author information

Abstract

Sensitive skin is a relatively common dermatologic condition and no optimal treatments have been established so far. Low-level laser/light therapy (LLLT) has been used for its biostimulative effect in various clinical settings. The purpose of this study was to investigate whether low-level laser/light therapy can improve sensitive skin clinically and to evaluate the effects of LLLT on skin in vitro. Twenty-eight patients complaining of sensitive skin were treated with low-level polarized light, and clinical results were evaluated using subjective and objective method. To investigate possible working mechanism of LLLT on skin, cultured human keratinocytes pretreated with nontoxic concentration of sodium lauryl sulfate (SLS) were used. Cytokines released from irritated keratinocytes after LLLT were analyzed. All patients showed subjective and objective improvement after treatment. No adverse effects were reported. The average number of LLLT sessions required to achieve clinical improvement was 9.9, and cumulative dose of LLLT was 71.3 J/cm(2) on the average. Erythema index decreased significantly after LLLT treatment ($p = 0.017$). In vitro assay showed that LLLT significantly reduced the release of VEGF from SLS-pretreated keratinocytes ($p = 0.021$). Our results suggest that LLLT could be a useful and safe treatment modality for sensitive skin, and modification of inflammatory cytokines released from irritated keratinocytes may be considered as one of plausible mechanisms in sensitive skin treated with LLLT.

Clinical studies
LLLT

J Cosmet Laser Ther. 2015 Jun;17(3):122-8. doi: 10.3109/14764172.2014.988727. Epub 2014 Dec 23.

Acne vulgaris and light-based therapies.

Momen S[1], Al-Niaimi F.

Author information

Abstract

Acne vulgaris is a common condition which remains challenging to treat in some cases. Laser and light-based therapies offer an alternative to medical therapies with the advantage of high compliance and relatively low side-effect profile. Light-based therapies in acne exert their effects through photochemical, photothermal, or a combination of both mechanisms. This article explains the mode of action for each light-based modality and examines the current evidence in this field.

KEYWORDS: PDT; lasers and light sources

Clinical studies

5 ALA

Exp Ther Med. 2015 Sep;10(3):1194-1198. Epub 2015 Jul 15.

Clinical efficacy of 5-aminolevulinic acid photodynamic therapy in the treatment of moderate to severe facial acne vulgaris.

Chen X[1], Song H[2], Chen S[3], Zhang J[2], Niu G[3], Liu X[3].

Author information

Abstract

Acne vulgaris is considered as a therapeutic challenge in terms of managing orgoing symptoms and preventing scar formation. Although there are many available treatments for alleviating acne, therapies for resistant or moderate-to-severe forms have been limited to systemic agents that are accompanied by potentially severe side-effects. While, aminolevulinic acid (ALA) photodynamic therapy (PDT) has increasingly been used as a simple and safe therapeutic option of acne vulgaris, the clinical efficacy requires confirmation in further studies. The aim of this study was to investigate the efficacy and safety of 5-ALA-PDT in the treatment of moderate-to-severe facial acne vulgaris. A total of 50 patients with moderate-to-severe facial acne were enrolled in the study and randomly divided equally into a therapy group and a control group. In the therapy group, the patients were treated with 5% 5-ALA for 1.5 h, followed by three 20-min doses of infrared radiation once a week; in the control group, the patients were treated with three 20 min doses of infrared raciation without 5-ALA once a week. Both treatments lasted for 3 weeks. The clinical efficacy was determined by evaluating acne lesion counts at weeks 0, 2, 4 and 6. Total efficacy rate (TER) was the primary endpoint of the study, and was defined as the proportion of the patients whose treatment effectiveness evaluation was cured (≥90% of skin lesions improved) and excellent (60-89% improvement). Adverse effects were recorded throughout the study. The study was completed by 24 patients in the therapy group and 23 patients in the control group. The numbers of acne lesions significantly decreased. The TER of the therapy group was significantly higher than that of the control group at weeks 4 and 6. Adverse effects were observed in 12 patients of the therapy group and 2 patients of the control group. In the therapy group the most common adverse effect was a burning sensation (n=7), followed by transient hyperpigmentation (n=3) and acute acneform lesions (n=2), while in control group, the 2 patients experienced flushing and dryness. The adverse effects were all cured by a symptomatic approach prior to the end of the study. 5-ALA-PDT combined with infrared radiation is an effective and safe therapy for moderate-to-severe facial acne.

Clinical studies

5 ALA

Lasers Surg Med. 2007 Apr;39(4):302-10.

5-ALA for photodynamic photorejuvenation--optimization of treatment regime based on normal-skin fluorescence measurements.

Christiansen K[1], Bjerring P, Troilius A.

Author information

Abstract

BACKGROUND AND OBJECTIVES: Photodynamic therapy using 20% 5 aminolevulinic acid (5-ALA) has recently been introduced as a new tool in optical skin rejuvenation. The primary objective of this study was to optimize incubation time, the topical delivery mechanism (vehicle) and the concentration of 5-ALA by detecting the dynamic changes of normal skin after 5-ALA application. The secondary objective was to develop a treatment regime which minimizes post-treatment photosensitivity.

STUDY DESIGN/MATERIALS AND METHODS: Skin fluorescence distribution patterns after topical application of low concentrations of 5-ALA (0.5% and 1% preparations encapsulated in liposomes), were investigated. Twenty percent 5-ALA in moisturizing cream was used as a control. Ten healthy volunteers participated, and skin fluorescence was documented by fluorescent photography. The fluorescent intensity was measured in % of maximum obtained fluorescence after 3 hours 5-ALA application.

RESULTS: Skin fluorescence intensity after topical application of 0.5% and 1% non-occluded liposome-encapsulated 5-ALA application was heterogeneous distributed and reached saturation level after approximate 2 hours. The maximal fluorescence for 0.5% and 1% 5-ALA treated areas was 4.2% (SD: 3.5%) and 2.4% (SD: 2%), respectively, and this difference was statistically significant (P = 0.036). The fluorescence decayed linearly shortly (within 15 minutes) after end of application and was back to baseline within 8 hours. In contrast, the fluorescence of areas treated more than 1 hour with 20% 5-ALA was very uniform and a linear relationship (r2 = 0.998) to the incubation time (0-3 hours) was registered. Furthermore, fluorescence intensity (15.2-57.9%) continued to increase after the end of 5-ALA application. The maximum fluorescence reach a level of 1.6-9 times the fluorescence measured by end of the 5-ALA application and occurred 8:13 hours (SD: 0:49 hours) after the end of 20% 5-ALA application. The average skin surface fluorescence induced by the liposome-encapsulated 0.5% 5-ALA applied for longer than 2 hours, was found to be statistically equal (P = 0.47) to the average measured skin surface fluorescence (4.2%) obtained after 30 minutes exposure to 20% 5-ALA cream (4.3%).

CONCLUSION: Changing the 5-ALA vehicle from a moisturizing cream to liposome encapsulation, the 5-ALA concentration can be lowered by a factor of 40, and still induce the same skin fluorescence and at the same time eliminates the need for occlusion. The low post-treatment fluorescence also suggests a significantly reduced risk of post-treatment phototoxicity.

Clinical studies

5 ALA

Cancer. 1997 Jun 15;79(12):2282-308.

5-Aminolevulinic acid-based photodynamic therapy. Clinical research and future challenges.

Peng Q[1], Warloe T, Berg K, Moan J, Kongshaug M, Giercksky KE, Nesland JM.

Author information

Abstract

BACKGROUND: Photodynamic therapy (PDT) for cancer patients has developed into an important new clinical treatment modality in the past 25-years. PDT involves administration of a tumor-localizing photosensitizer or photosensitizer prodrug (5-aminolevulinic acid [ALA], a precursor in the heme biosynthetic pathway) and the subsequent activation of the photosensitizer by light. Although several photosensitizers other than ALA-derived protoprophyrin IX (PpIX) have been used in clinical PDT, ALA-based PDT has been the most active area of clinical PDT research during the past 5 years. Studies have shown that a higher accumulation of ALA-derived PpIX in rapidly proliferating cells may provide a biologic rationale for clinical use of ALA-based PDT and diagnosis. However, no review updating the clinical data has appeared so far.

METHODS: A review of recently published data on clinical ALA-based PDT and diagnosis was conducted.

RESULTS: Several individual studies in which patients with primary nonmelanoma cutaneous tumors received topical ALA-based PDT have reported promising results, including outstanding cosmetic results. However, the modality with present protocols does not in general, appear to be superior to conventional therapies with respect to initial complete response rates and long term recurrence rates, particularly in the treatment of nodular skin tumors. Topical ALA-PDT does have the following advantages over conventional treatments: it is noninvasive; it produces excellent cosmetic results; it is well tolerated by patients; it can be used to treat multiple superficial lesions in short treatment sessions; it can be applied to patients who refuse surgery or have pacemakers and bleeding tendency; it can be used to treat lesions in specific locations, such as the oral mucosa or the genital area; it can be used as a palliative treatment; and it can be applied repeatedly without cumulative toxicity. Topical ALA-PDT also has potential as a treatment for nonneoplastic skn diseases. Systemic administration of ALA does not seem to be severely toxic, but the advantage of using this approach for PDT of superficial lesions of internal hollow organs is still uncertain. The ALA-derived porphyrin fluorescence technique would be useful in the diagnosis of superficial lesions of internal hollow organs.

CONCLUSIONS: Promising results of ALA-based clinical PDT and diagnosis have been obtained. The modality has advantages over conventional treatments. However, some improvements need to be made, such as optimization of parameters of ALA-based PDT and diagnosis; increased tumor selectivity of ALA-derived PpIX; better understanding of light distribution in tissue: improvement of light dosimetry procedure; and development of simpler, cheaper, and more efficient light delivery systems.

Clinical studies

TRANEXAMIC ACID

Dermatol Ther (Heidelb). 2017 Sep;7(3):417-424. doi: 10.1007/s13555-017-0195-0. Epub 2017 Jul 26.

Therapeutic Effects of Topical Tranexamic Acid in Comparison with Hydroquinone in Treatment of Women with Melasma.

Atefi N[1], Dalvand B[2], Ghassemi M[1], Mehran G[1], Heydarian A[1].

Author information

Abstract

INTRODUCTION: Few studies have focused on therapeutic as well as side effects of tranexamic acid (TXA) as a topical drug compared to other topical drugs in treating melasma. The present study aimed to assess and compare the beneficial therapeutic effects and also side effects of local TXA in comparison with hydroquinone in treating women with melasma.

METHODS: This randomized double-blinded clinical trial was performed on 60 women who suffered from melasma and were referred to the skin disorders clinic at the Rasoul-e-Akram hospital in Tehran in 2015. The patients were then randomly assigned via computerized randomization to two groups: group A received TXA%5 (topically twice a day for 12 weeks in the location of the melasma) and group B (received hydroquinone 2% with the same treatment order). Prior to intervention and at 12 weeks after intervention, the intensity and extension of melasma were assessed based on the Melasma Area and Severity Index (MASI) scoring method.

RESULTS: The mean MASI score in both treatment groups decreased considerably after completion of treatment and was not significant between the two groups. No side effects were detected in group A, but 10% of those in group B complained of drug-related side effects including erythema and skin irritation ($p = 0.131$). Regarding the level of patient satisfaction, the patients in group A had a significantly higher level of satisfaction level of 33.3% compared with 6.7% in group B ($p = 0.015$) (Fig. 9). Multivariate linear regression modeling with the presence of age, history of systemic disorder, drug history, and family history of melasma demonstrated no difference in the mean MASI between the two groups.

CONCLUSION: Topical use of TXA significantly reduced both melanin level and MASI score. Given its high efficiency and low drug side effects, this regimen results in high patient satisfaction compared with topical hydroquinone. IRCT code: IRCT2016040627220N2.

Clinical studies

TRANEXAMIC ACID

J Res Med Sci. 2014 Aug;19(8):753-7.

Topical tranexamic acid as a promising treatment for melasma.

Ebrahimi B[1], Naeini FF[1].

⊕ Author information

Abstract

BACKGROUND: In recent times, tranexamic acid (TA) is claimed to have whitening effects especially for ultraviolet-induced hyperpigmentation including melasma. The aim of our study was to evaluate the efficacy and safety of topical solution of TA and compare it with combined solution of hydroquinone and dexamethasone as the gold standard treatment of melasma in Iranian women.

MATERIALS AND METHODS: This was a double-blind split-face trial of 12 weeks which was conducted in Isfahan, Iran. Fifty Iranian melasma patients applied topical solution of 3% TA on one side of the face, and topical solution of 3% hydroquinone + 0.01% dexamethasone on the other side two times a day. The Melasma Area and Severity Index (MASI) and the side effects were evaluated at baseline and every 4 weeks before and after photographs to be compared by a dermatologist were taken. The patient satisfaction was documented at week 12.

RESULTS: A repeated measurement analysis was used to evaluate the changes in the MASI score before and after treatments. A significant decreasing trend was observed in the MASI score of both groups with no significant difference between them during the study ($P < 0.05$). No differences were seen in patients' and investigator's satisfaction of melasma improvement between two groups ($P < 0.05$). However, the side effects of hydroquinone + dexamethasone were significantly prominent compared with TA ($P = 0.01$).

CONCLUSION: This study's results introduce the topical TA as an effective and safe medication for the treatment of melasma.

Clinical studies

TRANEXAMIC ACID

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CONCLUSION: This study's results introduce the topical TA as an effective and safe medication for the treatment of melasma.

Clinical studies

TRANEXAMIC ACID

Randomized, placebo-controlled, double-blind study of oral tranexamic acid in the treatment of moderate-to-severe melasma

Eunice Del Rosario, MD, MS, Stephanie Florez-Pollack, BS, Lucio Zapata Jr., BS, Katia Hernandez, Andrea Tovar-Garza, MD, Michelle Rodrigues, MBBS (Hons), FACD, Linda S. Hynan, PhD, Amit G. Pandya, MD, FAAD

PlumX Metrics

DOI: https://doi.org/10.1016/j.jaad.2017.09.053 | CrossMark

Article Info

Abstract | Full Text | Images | References

Background

Melasma is a common pigmentary disorder that is often difficult to treat. Tranexamic acid (TA) has emerged as a promising treatment for melasma; however, few controlled studies exist.

Objective

To determine the efficacy of oral TA in patients with moderate-to-severe melasma.

Methods

Patients with moderate-to-severe melasma were treated with 250 mg of TA or placebo capsules twice daily for 3 months and sunscreen followed by 3 months of treatment with sunscreen only. The primary outcome measure was the modified Melasma Area and Severity Index (mMASI) score.

Results

A total of 44 patients were enrolled and 39 completed the study. At 3 months, there was a 49% reduction in mMASI score in the TA group versus 18% in the control group. Patients with severe melasma improved more than those with moderate melasma. Three months after treatment was stopped, there was a 26% reduction in mMASI score in the TA group compared with the baseline visit versus a 19% reduction in the placebo arm. No serious adverse events were noted in either group.

Limitations

Single-center study enrolling predominantly Hispanic women.

Conclusions

Oral TA appears to be an effective treatment for moderate-to-severe melasma with minimal side effects.

Clinical studies

GLUTATHIONE

Clin Cosmet Investig Dermatol. 2014 Oct 17;7:267-74. doi: 10.2147/CCID.S68424. eCollection 2014.

Skin-whitening and skin-condition-improving effects of topical oxidized glutathione: a double-blind and placebo-controlled clinical trial in healthy women.

Watanabe F[1], Hashizume E[1], Chan GP[2], Kamimura A[1].

Author information

Abstract

PURPOSE: Glutathione is a tripeptide consisting of cysteine, glycine, and glutamate and functions as a major antioxidant. It is synthesized endogenously in humans. Glutathione protects thiol protein groups from oxidation and is involved in cellular detoxification for maintenance of the cell environment. Reduced glutathione (GSH) has a skin-whitening effect in humans through its tyrosinase inhibitory activity, but in the case of oxidized glutathione (GSSG) this effect is unclear. We examined the skin-whitening and skin-condition effects of topical GSSG in healthy women.

SUBJECTS AND METHODS: The subjects were 30 healthy adult women aged 30 to 50 years. The study design was a randomized, double-blind, matched-pair, placebo-controlled clinical trial. Subjects applied GSSG 2% (weight/weight [w/w]) lotion to one side of the face and a placebo lotion to the other side twice daily for 10 weeks. We objectively measured changes in melanin index values, moisture content of the stratum corneum, smoothness, wrinkle formation, and elasticity of the skin. The principal investigator and each subject also used subjective scores to investigate skin whitening, wrinkle reduction, and smoothness. Analysis of variance was used to evaluate differences between groups.

RESULTS: The skin melanin index was significantly lower with GSSG treatment than with placebo from the early weeks after the start of the trial through to the end of the study period (at 10 weeks, $P<0.001$). In addition, in the latter half of the study period GSSG-treated sites had significant increases in moisture content of the stratum corneum, suppression of wrinkle formation, and improvement in skin smoothness. There were no marked adverse effects from GSSG application.

CONCLUSION: Topical GSSG is safe and effectively whitens the skin and improves skin condition in healthy women.

Clinical studies

GLUTATHIONE

Dermatol Pract Concept. 2018 Jan; 8(1): 15–21.
Published online 2018 Jan 31. doi: 10.5826/dpc.0801a04

PMCID: PMC5808366
PMID: 29445569

Glutathione for skin lightening: a regnant myth or evidence-based verity?

Sidharth Sonthalia,[1] Abhijeet K. Jha,[2] Aimilios Lallas,[3] Geraldine Jain,[4] and Deepak Jakhar[5]

Author information ▶ Article notes ▶ Copyright and License information ▶ Disclaimer

Abstract

Go to:

The recent hype surrounding the antimelanogenic properties of glutathione has resulted in physicians frequently administering it as a "wonder" drug for skin lightening and treatment of hyperpigmentation, especially in ethnic populations with darker skin tones. This phenomenon has seen a recent surge owing to aggressive marketing and capitalization of pharma-cosmeceutical companies. However, the unbridled and prodigal use of it, especially as a parenteral formulation, seems unjustified, given the lacunae in our knowledge about its antimelanogenic potential, limited clinical evidence favoring its role in skin lightening, and the statutory ban/advisory issued by certain federal agencies. Even though parenteral glutathione is approved only for severe liver disorders and for prevention of chemotherapy associated neurotoxicity, the lack of statutory laws governing the use of systemic glutathione in most countries has contributed to its unchecked use for skin lightening. The current clinical evidence of intravenous glutathione for skin lightening is limited to a single study with a dubious study design and apparently flawed analysis of results, casting doubt on the drug's efficacy and reported adverse effects. Two studies evaluating oral/sublingual administration and one trial involving the use of topical glutathione reported good safety profile and appreciable but reversible results on skin tone. In this article, we shall review and discuss the current status of glutathione as a skin lightening agent and address the sundry unanswered queries regarding the dosage, duration of use and longevity of accrued effects based on clinical evidence and recent insights into its antimelanogenic mechanism.

Clinical studies

MELATONIN

Dermatoendocrinol. 2012 Jul 1;4(3):245-52. doi: 10.4161/derm.22344.

Melatonin and human skin aging.

Kleszczynski K[1], Fischer TW.

Author information

Abstract

Like the whole organism, skin follows the process of aging during life-time. Additional to internal factors, several environmental factors, such as solar radiation, considerably contribute to this process. While fundamental mechanisms regarding skin aging are known, new aspects of anti-aging agents such as melatonin are introduced. Melatonin is a hormone produced in the glandula pinealis that follows a circadian light-dependent rhythm of secretion. It has been experimentally implicated in skin functions such as hair cycling and fur pigmentation, and melatonin receptors are expressed in many skin cell types including normal and malignant keratinocytes, melanocytes and fibroblasts. It possesses a wide range of endocrine properties as well as strong antioxidative activity. Regarding UV-induced solar damage, melatonin distinctly counteracts massive generation of reactive oxygen species, mitochondrial and DNA damage. Thus, there is considerable evidence for melatonin to be an effective anti-skin aging compound, and its various properties in this context are described in this review.

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