ABSTRACTS

UPDATING PUVA

1: Psoralen-mediated virus photoinactivation in platelet concentrates: enhanced specificity of virus kill in the absence of shorter UVA wave lengths.

Author(s): Margolis-Nunno-H; Robinson-R; Horowitz-B; Geacintov-NE; Ben-Hur-E.

SOURCE: Photochem-Photobiol. 1995 Nov; 62(5): 917-22

ABSTRACT:

Treatments with psoralens and long-wavelength ultraviolet radiation (UVA, 320-400 nm; PUVA) have shown efficacy for virus sterilization of platelet concentrates.

2: The pharmacokinetics of 8-methoxypsoralen following i.v. administration in humans.

Author(2): Billard-V; Gambus-PL; Barr-J; Minto-CF; Corash-L; Tessman-JW; Stickney-JL; Shafer-SL.

SOURCE: Br-J-Clin-Pharmacol. 1995 Oct; 40(4): 347-60

ABSTRACT:

The plasma pharmacokinetic model described the observations with a median absolute error of 17%, and the blood pharmacokinetic model described the observations with a median absolute error of 18%. Analysis of the relative concentration of 8-MOP between plasma and red blood cells suggested concentration-dependent partitioning. 6. The addition of 7.5 mg 8-MOP to 300 ml platelet concentrate would produce bactericidal concentrations of 25 micrograms ml-1. Simulations based upon our data show that intravenous administration of 7.5 mg over 60 min. would result in systemic concentrations of 8-MOP similar to those observed with conventional PUVA therapy. We conclude that the extensive safety history established in PUVA therapy will be applicable to this new application of 8-MOP.

3: Satisfactory remission achieved by PUVA therapy in a case of crisis-type adult T-cell leukaemia lymphoma with generalized cutaneous leukaemic cell infiltration.

Author(s): Takemori-N; Hirai-K; Onodera-R; Saito-N; Yokota-K; Kinouchi-M; Takahashi-H; Iizuka-H.

SOURCE: Br-J-Dermatol. 1995 Dec; 133(6); 955-60.

ABSTRACT:

We used PUVA therapy in a patient with crisis-type adult T-cell leukaemia/lymphoma and generalized cutaneous leukaemic cell infiltration. PUVA proved very effective in reducing leukaemic cells and in clearing the eruption. To understand the way in which PUVA produced a reduction in the number of leukaemic cells, we examined peripheral blood cells by light and electron microscopy. Light microscopy was of little help, but electron microscopy revealed that PUVA induced apoptosis-like changes in circulating leukaemic cells. This suggests that apoptosis-like changes in leukaemic cells might be the reason for the success of this treatment.

4: Calculation of 8-methoxypsoralen dose according to body surface area in PUVA treatment.

Author(s): Sakuntabhai-A; Diffey-BL; Farr-PM

SOURCE: Br-J-Dermatol. 1995 Dec; 133(6); 919-23

ABSTRACT:

In 41 patients about to start PUVA the dose of 8-methoxypsoralen (8-MOP) was calculated conventionally according to body weight (0.6 mg/kg), or according to body surface area (25 mg/m2) predicted from height and weight measurements. The two different methods of dosing were used on consecutive treatment days and the plasma 8-MOP concentration was measured on each occasion 2 h after ingestion of the crystalline form of 8-MOP, given to the nearest 10 mg. Body weight calculated doses ranged from 30 to 60 mg with a significant difference in the plasma 8-MOP concentration between the dose groups, indicating a systematic variation according to the weight of the patient. When calculated according to body surface area, only two doses were used (40 or 50 mg), and there was no significant difference in plasma 8-MOP concentration between the groups. Calculation of the dose of 8-MOP using body surface area may be performed quickly and simply provided the height and weight of individual patients in known. We provide evi

dence that this method of dosing will improve the therapeutic effect of PUVA in psoriasis.

5: PUVA treatment of alopecia areata partialis, totalis and universalis: audit of 10 years experience at St. John's Institute of Dermatology.

Author(s): Taylor-CR; Hawk-JL
SOURCE: Br-J-Dermatol. 1995 Dec; 133(6): 914-8

ABSTRACT:

Our 10-year experience with PUVA treatment for alopecia areata, partialis, totalis and universalis was retrospectively reviewed using charts and follow-up questionnaires for 70 patients st St. Jonh's Institute of Dermatology. In all cases, several previous therapies were judged to be unsatisfactory prior to starting PUVA, and many cases were already deemed clinically refractory prior to referral for PUVA. If cases of vellus hair growth are excluded, and those who lost their PUVA-induced regrowth rapidly on follow-up, the effective success rate was at best 6.3% for alopecia areata partialis, 12.5% for alopecia areata totalis and 13.3% for alopecia areata universalis. We affirm that PUVA is generally not an effective treatment for alopecia areata.

6: A comparison of twice-weeklyMPD-PUVA and three times-weekly skin typing-PUVA regimens for the treatment of psoriasis.

Author(s): Buckley-DA; Healy-E; Rogers-S
SOURCE: Br-J-Dermatol. 1995 Sept; 133(3): 417-22

ABSTRACT:

The most frequent PUVA treatment regimen in current use is three times weekly, using skin typing to estimate the starting dose. Recently, it was suggested that twice-weekly treatment, using the minimal phototoxic dose (MPD) to calculate suberythemal starting doses of UVA, achieved similar clearance rates with fewer treatments and a lower cumulative UVA dose. We have carried out a trial on 83 patients, comparing twice-weekly MPD-PUVA with three times-weekly skin typing-PUVA, in order to test this hypothesis. Although clearance rates were comparable between the two regimens, there was no overall significant difference in the number of treatments or in the cumulative UVA doses at clearance. However, for patients with skin types I and II the cumulative UVA dose was significantly higher using the twice-weekly MPD regimen (70.0J/cm2 vs. 55.8 J/cm2; P <0.05). Our results do not confirm that there is a reduction in cumulative UVA dosage with twice-weekly MPD-PUVA.

7: UV-Protective sunglasses for UVA irradiation protection.

Author(s): Leow-YH; Tham-SN
SOURCE: Int-J-Dermatol. 1995 Nov; 34(11): 808-10

ABSTRACT:

BACKGROUND. Eye protection with UVA-blocking solar shields is recommended on the day of PUVA treatment and the following day for our patients; however, many patients found this eyewear cosmetically unacceptable. METHOD. We investigated 34 pairs of sunglasses to determine their suitability for providing adequate protection. The method used was modified from the technique used by Moseley et al. in 1988. RESULTS. We found that 21 (61.8%) of the 34 pairs of sunglasses and only 9 (53%) of the 17 pairs of sunglasses used by our patients were "satisfactory". Expensive brands and polarizing sungalsses do not guarantee optimal UVA protection. CONCLUSION. We recommend that all patients should use wrap-around solar shields for optimal eye-protection, while undergoing PUVA treatment. The availability of more cosmetically acceptable glasses will encourage better patients' compliance to protect their eyes with optical aids.

8: Verruciform xanthoma in a psoriatic patients under PUVA therapy.

Author(s): YamamotoT; Katayama-I; Nishioka-K
SOURCE: Dermatology. 1995; 191 (3): 254-6

ABSTRACT:

A patient with psoriasis vulgaris developed verruciform xanthoma (VX) on the scrotum duirng psoralen photochemotherapy (PUVA). Although it is uncertain whether VX was induced by PUVA therapy, we report the first case of VX which appeared in a patient with psoriasis during PUVA therapy. We speculate the UV light may be one of the etiologic factors triggering VX in this case.

9: [Chemotaxis activity of neutrophils and monocytes in patients with psoriasis vulgaris in relation to PUVA therapy]

Author(s): Poljacki-M; Jovanovic-M; Budakov-M; Duran-V; Subotic-M
SOURCE: Med-Pregl. 1995; 48(7-8): 217-21

ABSTRACT:

With regard to the existing possibility favored by many immunologists that study on neutrophil (N) and monocyte (Mo) may throw light on the pathogenetic mechanism of clinical conditions such as psoriasis, the effect of PUVA therapy on human N and Mo chemotaxis in psoriasis vulgaris (PV) was investigated. One hundred psoriatic patients with severe clinical picture participated in this study; 20 with acute exanthematic form, 16 with chronic stable form and 64 patients in acute flare of the chronic course. Eitzman's modified method introduced originally by Rebuck was employed prior to and after PUVA, to assess N and Mo chemotaxis. The obtained results have shown pronounced and significant enhancement and N and Mo migration prior to and after PUVA in all investigated groups of patients. Significant difference due to PUVA therapy was seen only in the third phase of the inflammatory response regarding all assessed patients and group A. In this phase, these patients showed significant decrease in N and Mo mobility rate after PUVA treatment in comparison to the chemotactic activity prior to PUVA. These findings suggest the study on N and Mo chemotaxis to be justified only during the third phase of the inflammatory response, when the assessment of PUVA effect is concerned.

10: Interferon in the treatment of cutaneous T-cell lymphoma.

Author(s: Olsen-EA; Bunn-PA
SOURCE: Hematol-Oncol-Clin-North-Am. 1995 Oct; 9(5): 1089-107

ABSTRACT:

All of the recombinant inferferons are active agents for the systemic treatment of mycosis fungoides and Sezary syndrome. The response rates are similar to those observed with systemic chemotherapy. There is no clear evidence that combining interferons with other systemic therapies increases the response rates. The combination of interferon with PUVA provides provocative results. The optimal role of interferons in the treatment of mycosis fungoides and Sezary's sndrome is undefined.

11: Treatment of localised scleroderma by UVA1 phototherapy [letter]

Author(s): Kerscher-M; Dirschka-T; Volkenandt-M
SOURCE: Lancet. 1995 Oct 28; 346 (8983) : 1166

12: Ultraviolet radiation therapy and HIV disease [letter]

Author(s): Smith-KJ; Skelton-HG; Yeager-J
SOURCE: J-Am-Acad-Dermatol. 1995 Nov; 33 (5 Pt 1): 841-2.

13: Flow cytometric analysis of pig epidermal keratinocytes: Effects of ultraviolet B irradiation (UVB) and topical PUVA treatment.

Author(s): Hashimoto-Y; Tsutsui-M; Matsuo-S; Iizuka-H
SOURCE: J-Dermatol-Sci. 1995 Jul; 10(1): 16-24.

ABSTRACT:

The effects of a single application of ultraviolet B irradiation (UVB) and topical PUVA treatment on pig epidermal cell kinetics were studies by DNA-flow cytometry (FCM), 3H-thymidine uptake, mitotic counts and 2-3H-deoxy-D-glucose uptake. Following UVB irradiation (2MED:250 mJ/cm2) and PUVA (0.9, 1.4 J/cm2) treatment, thymidine uptake and mitosis were markedly decreased. This was followed by a transient increase in all of these parameters. The maximal increase was observed at 96 h following the UVB irradiation and at 168 h following the PUVA treatment (0.9 J/cm2), respectively. The suppression of DNA synthesis and mitosis persisted for a longer period in PUVA-treated than in UVB-treated epidermis. At 48-72 h after the UVB irradiation and 72-144 h after the PUVA treatment, an increase in the cells of the G2/M fraction was observed. This was associated with the decreased mitotic counts, suggesting accumulation of G2-blocked cells. Histologically, PUVA-treated epidermis showed a considerable degenerative change. Mild acanthosis was noted at 72-96 h in UVB-treated epidermis and at 168 h in PUVA-treated epidermis. These results indicate that the inhibition of DNA synthesis and increase in G2-phase cells are associated with the UVB and PUVA induced suppression of epidermal cell proliferation. These suppressive effects that persisted longer in PUVA-treated, than in UVB-treated epidermis, were followed by an increased epidermal keratinocyte proliferation of pig skin in vivo.

14: PUVA-bath photochemotherapy of lichen planus[letter]

Author(s): Kerscher-M; Volkenandt-M, Lehmann-P; Plewig-G; Rocken-M
SOURCE: Arch-Dermatol. 1995 Oct; 131(10): 1210-1

15: Elimination of potential mutagenicity in platelet concentrates that are virally inactivated with psoralens and ultraviolet A light.

Author(s): Margolis-Nunno-H; Robinson-R; Ben-Hur-E; Chin-S; Orme-T; Horowitz-B
SOURCE: Transfusion. 1995 Oct; 35(10): 855-62

ABSTRACT:

BACKGROUND: For virus sterilization of platelet concentrates (PCs), treatment with aminomethyltrimethyl psoralen (AMT) and long-wavelength ultraviolet A light (UVA) has shown efficacy. It has been found that treatment with 50 micrograms per mL of AMT and 38 J per cm2 of UVA in the presence of 0.35-mM rutin efficiently kills viruses while maintaining platelet integrity. There is, however, concern about the mutagenic potential of psoralens and UVA (PUVA)-treated PCs. STUDY DESIGN AND METHODS: Adsorption of PUVA-treated PCs with a hydrophobic resin containing C18 as the ligand was used for AMT removal, which was quantitated by the use of radioactive AMT. PUVA-treated PCs, with and without C18 treatment, were examined for solution pH and platelet aggregation response to agonists. In addition, residual AMT activity was determined by AMT's virucidal activity or incorporation into cellular DNA upon a second UVA irradiation and by its mutagenic potential in the Ames test. RESULTS: After PUVA treatment of PCs, residual AMT retained virucidal and adduct-forming ability upon re-exposure to UVA, but activities were less than those observed originally. As has been found previously, AMT had mutagenic potential following incubation in the dark with rat liver S9 microsomal enzymes. The PUVA treatment reduced this potential by 90 percent. C18 adsorption following PUVA treatment had no negative effect on platelet integrity and eliminated 50 percent of the added radioactive AMT. In addition, all detectable virucidal, nucleic acid-modifying, and mutagenic activities of AMT-treated PCs were removed by C18. CONCLUSION: These results suggest that hydrophobic resin adsorption of PUVA-treated PCs will conveniently remove functional psoralens and eliminates their mutagenic potential.

16: Plasma levels of 8-methoxy-psoralen after bath-PUVA for psoriasis: Relationship to disease severity.

Author(s): Gomez-MI; Azana-JM; Arranz-I; Harto-A; Ledo-A
SOURCE: Br-J-Dermatol. 1995 Jul; 133 (1): 37-40

ABSTRACT:

Plasma levels of 8-methoxypsoralen (8-MOP) were determined by high-pressure liquid chromatography in 19 patients with psoriasis who were receiving bath-PUVA treatment, at different time points after the psoralen bath. The levels of 8-MOP varied between <5 ng/ml (lower limit of detection) and 34 ng/ml, and we found a relationship between the plasma psoralen levels and the severity of the disease.

17: Sulphur and Selenium analogues of psoralen as novel potential photochemotherapeutic agents.

Author(s): Vedaldi-D; Caffieri-S; Frank-S; Dall'Acqua-F; Jakobs-A; Piette-J.
SOURCE: Farmaco. 1995 Jul-Aug; 50(7-8): 527-36

ABSTRACT:

Some heteropsoralens, obtained by replacing one or both the intracyclic oxygen atoms with sulphur and/or selenium, were studied. In preliminary tests, these compounds showed strong photobiological activity, in some cases more than two orders of magnitude higher than that of psoralen. Heteropsoralens containing sulphur undergo intercalation inside duplex DNA, showing evident affinity for the macromolecule; when selenium replaces furan oxygen, the psoralen isoster also undergoes intercalation but with lower efficiency, while psoralen isosters in which pyrone oxygen is replaced by selenium practically do not intercalate. Parallel behaviour was also observed for DNA photobinding and corsslink formation. The cycloadduct between furan selenium and pyrone sulphur isoster and thymine was isolated and characterized. The capacity of the various psoralen isosters to generate singlet oxygen and superoxide radical anion was studied. For the former the yield varies markedly for the various compounds, while for the latter the yield is similar for all compounds.

18: A new psoralen-containing gel for topical PUVA therapy: Development, and treatment results in patients with palmoplantar and plaque-type psoriasis, andhyperkeratotic eczema.

Author(s): De-Rie-MA; Van-Eendenburg-JP;

Versnick-AC; Stolk-LM; Bos-JD; Westerhof-W
SOURCE: Br-J-Dermatol. 1995 Jun; 132(6): 964-9.

ABSTRACT:

Topical photochemotherapy with psoralen and its derivatives 4,5', 8-trimethylpsoralen (TMP) and 8-methoxypsoralen (8-MOP), with UVA irradiation, was evaluated with regard to minimum phototoxic dose, concentration, timing of UVA irradiation and systemic and local side-effects, in healthy volunteers. Psoralen (0.005%) in aqueous gel was found to be superior to TMP and 8-MOP in aqueous gel. No hyperpigmentation was seen after topical PUVA treatment with psoralen in aqueous gel. Patients with plaque-type psoriasis (n = 7), palmoplantar psoriasis (n = 7) and hyperkeratotic eczema (n = 2) were treated. Topical PUVA therapy was effective in most psoriasis patients, without the occurrence of local or systemic side-effects. Moreover, hyperkeratotitc eczema patients who did not respond to conventional therapy showed partial remission. These results indicate that topical PUVA therapy with psoralen in aqueous gel is a useful therapeutic modality for treatment of psoriasis patients, and patients with recalcitrant dermatoses such as palmoplantar psoriasis and hyperkeratotic eczema.

19: PUVA-bath photochemotherapy resulting in rapid clearance of lymphomatoid papulosis in a child [letter]

Author(s): Volkenandt-M; Kerscher-M; Sander-C; Meurer-M; Rocken-M
SOURCE: Arch-Dermatol. 1995 Sep; 131(9): 1094

20: Photo(chemo)therapy and general management of erythropoietic protoporphyria.

Author: Roelandts-R
SOURCE: Dermatology. 1995; 190(4): 330-1

ABSTRACT:

Erythropoietic protoporphyria is an autosomal dominant or autosomal recessive photodermatosis characterized by a deficiency of the enzyme ferrochelatase. The diagnosis is based on the very typical complaints of burning and pain on sun exposure and on increased protoporphyrin concentration in the red blood cells, the plasma and the feces. Different treatment modalities have been proposed. The treatment of choice has always been beta-carotene. For severe cases, PUVA treatment can be given three times a week until a total UVA dose of 120-200 J/cm2. In younger children, UVB phototherapy can be used if beta-carotene gives unsatisfactory therapeutic results. The irradiations are given four times a week until a total dose of 1-1.5 J/cm2 is reached.

21: Cutaneous T-cell lymphoma presenting with atypical perianal lesions.

Author(s): Hill-VA; Hall-Smith-P; Smith-NP
SOURCE: Dermatology. 1995; 190 (4): 313-6

ABSTRACT:

A patient with an atypical presentation of cutaneous T-cell lymphoma is reported. For many years, there were perianal lesions only, which were initially diagnosed as a non-specific severe perianal dermatitis, possibly due to psoriasis. There was little response, however, to potent topical steroids. Further patch and plaque lesions then developed elsewhere and plaque stage mycosis fuogoides was diagnosed, allowing effective treatment with superficial radiotherapy and PUVA to be given. The difficulties that may be encountered in the diagnosis of cutaneous T-cell lymphoma are discussed.

22: Combination of methoxsalen and ultraviolet B(UVB) versus UVB radiation alone in treatment of psoriasis: a bilateral comparison study.

Author: Morison-WL
SOURCE: Photodermatol-Photoimmunol-Photomed. 1995 Feb; 11(1): 6-8

ABSTRACT:

A bilateral comparison study of the therapeutic effects of broad-band ultraviolet (UVB) (FS-40 Sunlamp bulbs) radiation versus UVB radiation plus methoxsalen was conducted in patients with psoriasis. Ten patients were given up to 30 exposures to the two treatments on paired, similarly affected limbs. There was no detectable difference in the response of limbs treated with UVB plus methoxsalen versus UVB phototherapy alone although all patients did show a therapeutic response. Other areas of the body treated with methoxsalen and broad-band UVA radiation (PUVA bulbs) responded more rapidly and to a greater extent than areas exposed to UVB radiation.

23: Zingiber officinale (ginger) used to prevent 8-MOP associated nausea.

Author(s): Meyer-K; Schwartz-J; Crater-D; Keyes-B

SOURCE: Dermatol-Nurs. 1995 Aug; 7 (4): 242-4

ABSTRACT:

Patients undergoing photopheresis are required to ingest the drug 8-MOP as part of their treatment. This drug causes nausea as a side effect. Ginger taken prior to 8-MOP may substantially reduce this side effect. This study compared patients' nausea when taking 8-MOP with and without ginger.

24: Treatment of mycosis fungoides with photochemotherapy (PUVA): long-term follow-up.

Author(s): Herrmann-JJ; Roenigk-HH Jr; Hurria-A; Kuzel-TM; Samuelson-E; Rademaker- AW; Rosen-ST

SOURCE: J-Am-Acad-Dermatol. 1995 Aug; 33(2 Pt 1): 234-42

ABSTRACT:

BACKGROUND: Mycosis fungoides (MF) is a non-Hodgkin's T-cell lymphoma of the skin that often begins as limited patches and plaques with slow progression to systemic involvement. No studies have been published comparing photochemotherapy (PUVA) with other topical therapies in the treatment of early-stage disease. OBJECTIVE: The purpose of the study was to examine our long-term experience using PUVA to treat early-stage MF and to compare its effectiveness and side-effect profile with other previously reported topical therapies. METHODS: Eighty-two patients with MF (83% stage IA or IB) were treated with PUVA. Clinical and histologic features were observed for a period from 2 months to 15 years (median, 43 months). RESULTS: A response was noted in 78 patients (95%) with complete clinical and histologic clearing in 53 patients (65%) for all stages. The mean duration of total complete response to PUVA for all stages was 43 months (3.6 years). The mean survival of our study group for all stages was 8.5 years. Signs of chronic actinic skin damage were found in 10% of patients, including three patients with basal cell carcinomas and three patients with squamous cell carcinomas. In a nonradomized comparison with previously reported data for other topical therapies, the efficacy and side-effect profile of PUVA compared favorably. CONCLUSION: PUVA is an effective and safe therapy for MF with prolonged disease-free remissions being achieved. Patients with stage I and II MF respond best to PUVA. Palliative therapy with PUVA is useful in more advanced cases of MF.

25: Photochemotherapy of oral lichen planus. A controlled study.

Author(s): Lundquist-G; Forsgren-H; Gajecki-M; Emtestam-L

SOURCE: Oral-Surg-Oral-Med-Oral-Pathol-Oral-Radiol-Endod. 1995 May; 79(5): 554-8.

ABSTRACT:

Photochemotherapy with 8-methoxypsoralen and long-wave ultraviolet light (PUVA) has become a useful alternative in dermatologic therapy. PUVA therapy has been successfully used in the treatment of severe psoriasis and cutaneous lichen planus. The aim of this investigation was to use PUVA in the treatmentof oral lichen planus (OLP). Eighteen patients with long-standing, bilateral, and severe OLP of the buccal mucose participated in the investigation. A dose of 0.6 mg/kg 8-methoxypsoralen was administered orally 2 hours before long-wave ultraviolet light irradiation was done. The patients were randomly assigned to treatment of the left or right side of the buccal mucosa. The irradiation therapy was given 12 times at intervals of 2 to 3 days, and the patients received a total average dosage of 16.5 J/Cm2. The results showed that 13 treated sites compared with six control sites responded significantly favorable to PUVA therapy. Two patients dropped out because of side effects that were similar to those seen after whole-body irradiation PUVA treatment. The follow up times was 12 months. The conclusion of this study is that PUVA seems to be effective in the treatment of OLP and should be considered in severe cases of OLP.

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