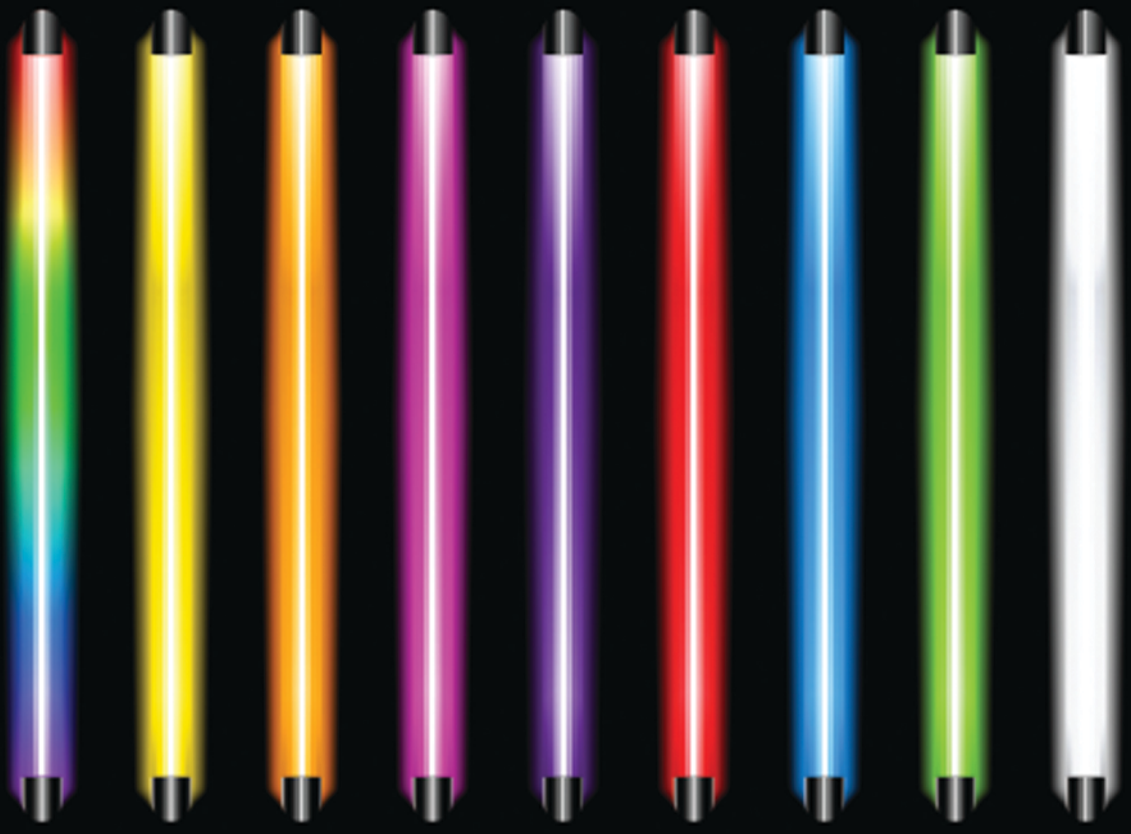
Series in Dermatological Treatment

PHOTOTHERAPY TREATMENT PROTOCOLS

THIRD EDITION



Steven R. Feldman
Michael D. Zanolli

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PHOTOTHERAPY
TREATMENT PROTOCOLS

Series in Dermatological Treatment

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PHOTOTHERAPY
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Introduction to the Third Edition

The treatment of psoriasis has evolved dramatically since the last edition. The introduction of tumor necrosis factor inhibitors revolutionized the treatment of psoriasis. Then came an interleukin-12/interleukin-23 inhibitor that only requires one injection every 3 months, about equal in efficacy to the strongest of the tumor necrosis factor inhibitors. And now, in interleukin-17 inhibitors, we have even more potent treatments. Moreover, the safety of these new systemic treatments knocks the socks off the former gold-standard systemic treatments of the past, methotrexate and cyclosporine.

But biologics are expensive and should only be used in patients who need them. For patients with psoriasis or other diseases that can be effectively treated with phototherapy, biologics may not be required. In an era of constantly increasing focus on reducing the cost of disease management, phototherapy—which has fallen to the side in the wake of biologic excitement—may be poised for resurgence. The array of phototherapy options—from whole body and targeted phototherapy in the office to home phototherapy—remain a valuable, effective, safe, and cost-effective way to manage a host of skin conditions.

We hope this manual helps give you the tools you need to make phototherapy more accessible to your patients.

Steven R. Feldman

Introduction to the Second Edition

The basic premise concerning the therapeutic option of phototherapy remains the same for the second edition as with our first edition. The first sentence of the introduction to the first edition reads: "The availability of phototherapy in a dermatology practice enables the practitioner to provide a broader range of therapeutic options." I encourage the persons utilizing the protocols contained in this book to read through the Introduction to the First Edition to enable them to have a better understanding of the application of therapeutic ultraviolet light therapy for inflammatory diseases. The continued modifications of protocols, although minimal in most circumstances, demonstrate the ongoing refinement of ultraviolet light delivery to maintain therapeutic efficacy while minimizing possible side effects.

New delivery systems for ultraviolet light, whether in the form of laser or localized ultraviolet B light, have been an advancement in the application of phototherapy for the same diseases that are treated with whole body phototherapy. The incorporation of protocols for localized delivery enables even more utility for treatment with ultraviolet light to the affected areas while sparing the clinically normal skin. The localized delivery technology brings with it a shift in the approach to treatment. Instead of limiting the dose energy delivered to the whole body in order to minimize the possible side effects of ultraviolet light to uninvolved skin, the areas to be treated are given multiples of the minimal erythema dose to produce the most rapid and effective clearing of the diseased skin. In addition, while treating specialized diseases such as vitiligo with localized ultraviolet light, the dose can be adjusted to use lower amounts of light to depigmented areas without enhancing the contrast with surrounding normal skin. The addition of protocols using localized delivery of ultraviolet light is an important aspect of this new second edition.

The effects of ultraviolet light on the skin continue to be a source of new insight into the physiology and pathophysiology as related to the broader field of photobiology and photomedicine. I remain fascinated by the continued developments in this field that help us to understand why ultraviolet light is such a beneficial therapy for inflammatory dermatosis of the skin. There are clearly differences in the effects in the skin with delivery of high-dose ultraviolet light at various wavelengths when compared to lower doses of ultraviolet light. As with the more recent advent of protein immune modifiers for the treatment of psoriasis, the "biologics," the effects of ultraviolet light in low doses serve to modify the skin's immune mechanisms and help decrease the activity of psoriasis. Further insights into the complex interactive pathways of the cutaneous immune system will not only help to refine therapeutic intervention but will also add to the understanding of the pathophysiology of the disease. Use of these protocols for treatment of responsive skin diseases is in effect application

of "photobiologic" therapy. The continued use of ultraviolet light by medical specialists will remain an option for therapeutic intervention for chronic inflammatory skin diseases.

Michael D. Zanolli
Steven R. Feldman

Introduction to the First Edition

The availability of phototherapy in a dermatology practice enables the practitioner to provide a broader range of therapeutic options. This is especially true for those dermatologists who treat a large number of inflammatory dermatoses, particularly psoriasis. The development of a phototherapy unit, even if it is just a single ultraviolet light cabinet, will serve not only the patients in a particular practice, but can also serve as a regional referral center. Smaller communities surrounding such a location would tend to refer to a local center rather than having the patients undertake time-consuming drives two or three times a week for phototherapy at a less convenient site in a large urban setting.

There are many textbooks concerning photomedicine, photobiology, and therapeutic applications for ultraviolet light (see Suggested Reading). These are invaluable for understanding the scientific underpinning of phototherapy and the development of the protocols contained in this manual. The expertise of the physician concerning the proper delivery of ultraviolet light treatments for a particular patient or a particular disease is essential to obtaining the best outcomes. The physician should also serve as the resource for information concerning medical aspects of phototherapy. This manual provides a practical basis for phototherapy protocols and consent forms that can be modified or adjusted by the physician to meet the specific needs of specific patients.

In addition to the important role played by the physician in determining treatment regimens, special training on the part of the phototherapy nurses and technicians has become more important for the continuity of care and for determining the standard of care for any particular region. Essential to any phototherapy location are the expert nursing efforts necessary to carry through the implementation of the protocols and to be vigilant for signs, especially early subtle signs, of phototoxic reactions and other possible side effects during the course of therapy. Physicians should strongly consider the benefits of using another practical resource for psoriasis patient education: the National Psoriasis Foundation.

The genesis and development of this phototherapy manual occurred because of the need to have available on site a standard of the protocols for delivery of medical treatments for compliance with local and federal regulations. This is particularly true for a hospital-based phototherapy treatment center. This compilation of treatment protocols is not meant to be absolute, comprehensive, or construed as the only method for delivery of care. The protocols continue to be in a state of development and modification to better improve the response to therapy and, it is hoped, to decrease the frequency of side effects. Another factor that enters into the modifications of phototherapy protocols is the advent of newer technology, such as narrowband UVB or the use of psoralen medications other than 8-methoxypsoralen in the future. The use of phototherapy and enhancement of therapeutic response must always take into consideration the risk of side effects from the particular modality of treatment, both short and long term.

The original protocol manual was devised at the Bowman-Gray School of Medicine, Wake Forest University Medical Center, for its Psoriasis Day Care Center in 1986. Many changes in the overall treatment of psoriasis have occurred since that time, such as outpatient Goeckerman treatment being used much less frequently than 10 years ago. The new treatments include use of systemic retinoids, immunosuppressive treatments, and topical vitamin D_3 analogues and retinoids, often in combination with phototherapy. There are still centers at which the Goeckerman or modified Ingram treatments for psoriasis are the mainstay of their facilities. However, more outpatient treatments and increased use of combination therapy with ultraviolet light and topical therapy or ultraviolet light and systemic therapy bring the outpatient treatment of psoriasis back to dermatologists' offices. This eliminates the need for large outlays of capital for the development of treatment centers that would occupy 1000–1500 ft^2 in order to provide the facilities necessary for day-care treatments, bath facilities, lounge areas, and multiple treatment rooms.

This text is meant to be an office-based manual that can be used as the office procedure manual. It can be referred to on a daily basis by the phototherapy technicians, as well as used as a resource if any questions arise about the standards of care within an office. We encourage you to make and modify copies of the consent forms and other documents and use them for patients in your practice.

This manual is not meant to be a rigid text. The protocols have undergone and continue to undergo their own genesis. Modifications or additions to the text for delivery of ultraviolet light for a particular disease or variations between skin types that best suit the practitioner can be done to the main body of the text with minimal effort. The manual also can be used as a basis for treatment of photoresponsive diseases that are not individually listed or do not have sections devoted to them. Other entities reported in dermatological literature as responsive to ultraviolet light therapy would include eosinophilic folliculitis, granuloma annulare, graft vs. host disease, certain forms of lichen planus, and, of course, variations on the parapsoriasis group of disorders, such as large plaque parapsoriasis and/or common pityriasis rosea. The basis for treatment of these disorders and necessary protocols for the phototherapy technicians or nurses to follow can be derived by the local site and kept on file for reference.

One of the basic principles to be understood when selecting ultraviolet therapy, whether in the form of UVB or photochemotherapy with PUVA, is each disease entity may not and should not be treated exactly alike. The phototherapy for psoriasis differs from the approach to therapy for a mild case of pityriasis rosea. In general, phototherapy can be therapeutic even when used in a nonerythemogenic modality, and this is particularly true when dealing with forms of photochemotherapy. Therefore, the manual has extreme flexibility, and the most common of the photoresponsive dermatoses are listed with fairly specific protocols that have been used for the past 14 years with methods that have been modified through experience and found to be successful. Other dermatoses may also be treated with a different dosage and frequency of therapy for a specific disorder. For example, the treatment modality for atopic dermatitis with UVA/UVB combination therapy may also be used to treat eosinophilic folliculitis. The protocol for treatment of generalized granuloma annulare may also be adopted from the treatment protocol used for cutaneous T-cell lymphoma. The understanding and the insights into the photobiology associated with the changes of improvement in the inflammatory dermatoses

are also going to continue to be more delineated as time goes on. This manual can serve as the source of defined protocols for the delivery of therapeutic ultraviolet light and can be modified to treat those other dermatoses that may not be corticosteroid responsive, without the need for systemic immunosuppressive therapy in many cases.

The development and modifications of this manual, initially at Wake Forest University Medical Center, then at the Vanderbilt Phototherapy Treatment Center, have only been possible and brought to light because of the continuing efforts of the dedicated physicians and personnel at both institutions. The requests of practicing dermatologists for such a manual have been the moving force behind getting this project to the dermatology community. More important are the benefits to the patients who can now receive phototherapy closer to home and through their own dermatologists' offices. The overall use of phototherapy as an office procedure can be very rewarding for practitioners because of the broad range of dermatoses that have been reported as being responsive to therapeutic intervention with ultraviolet light treatment. In my opinion, the gratification of being able to deliver a therapeutic option, which is so beneficial to patients with photoresponsive dermatoses, will make providing such treatment a satisfying part of any busy dermatology practice.

Michael D. Zanolli

Warning

Narrowband UVB protocols use more energy (joules) than broadband protocols. *Do not* use the narrowband protocols with broadband equipment as serious harm could result.

National Psoriasis Foundation

Dermatologists offering phototherapy should keep in mind the National Psoriasis Foundation (NPF), a terrific resource for our psoriasis patients. The NPF has great patient education resources, with a wide variety of brochures available free (digitally) to doctors to help educate patients about phototherapy and their other treatment options. It supports the specialty of dermatology by working with insurers and regulators to assure patients have access to dermatologists and to psoriasis treatments. The Foundation can also help with a critical issue for dermatologists setting up a phototherapy unit: the education of the phototherapist through NPF-sponsored courses. The NPF has been an invaluable resource to the editors of this book.

The Foundation's resources are freely accessible at www.psoriasis.org. We encourage all health care professionals caring for patients with psoriasis to joint the Foundation as professional members.