



# JOURNAL OF DERMATOLOGY RESEARCH AND THERAPY

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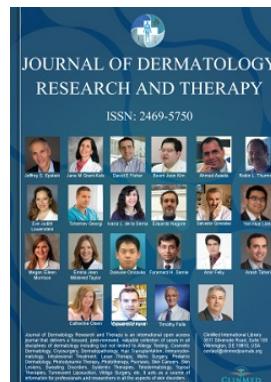
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# Journal of Dermatology Research and Therapy



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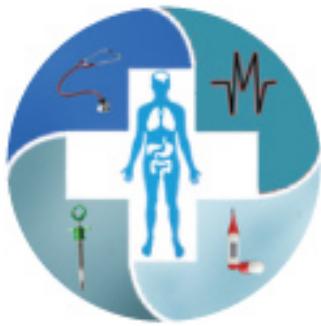
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Jeffrey S. Epstein, M.D., FACS, Founder and Director of the Foundation for Hair Restoration, has been in private practice since 1994. He is triple board certified by the American Board of Facial Plastic and Reconstructive Surgery, the American Board of Hair Restoration Surgery, and the American Board of Otolaryngology/Head and Neck Surgery. In addition to his busy clinical practice, where he personally performs all his surgeries in his accredited office facility, he is a Voluntary Clinical Professor at the University of Miami, and Past President of the Florida Society of Facial Plastic and Reconstructive Surgery. He publishes and lectures extensively, [view full biography](#)

#### Timothy Falla

Chief Scientific Officer

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Dr. Timothy Falla is the Chief Scientific Officer at Rodan + Fields. For over 25 years Dr. Falla has worked in the discovery and development of prescription drugs, OTC dermatology products and skincare products and has been with Rodan + Fields since 2011. Previously he served as CSO of Helix BioMedix Inc., where he was responsible for introducing innovative technologies into more than 100 dermatological products targeting acne, rosacea, hyperpigmentation, photoaging and inflammation. His work has resulted in more than 30 patents and patent applications and over 100 peer reviewed publications. Dr. Falla holds a Bachelor of Science in Applied

[view full biography](#)**Jane M Grant-Kels**

Professor

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Dr. Jane M. Grant-Kels is founding chair of the Division and then Department of Dermatology at the University of Connecticut Health Center as well as Professor of Dermatology, Pathology and Pediatrics. She is director of the dermatology residency program which she played a major role in creating in 2007, director of the dermatopathology laboratory and the director of both the Cutaneous Oncology Center and Melanoma Program. She is also Assistant Dean of Clinical Affairs. Dr. Grant-Kels received a BA Degree in 1971 from Smith College and her Medical Degree from Cornell University Medical College in 1974. She trained in pediatrics

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Daniel E. Furst is Professor of Medicine at the University of California (Emeritus), Los Angeles (UCLA), Medical Center, David Geffen School of Medicine, Department of Medicine, Division of Rheumatology. Dr. Furst is also Adjunct Professor at the University of Washington, Seattle Washington and Research Professor at the University of Florence, Florence, Italy. He has part time practices at the Arthritis Associates of Southern California and the Seattle Rheumatology Associates in Seattle Washington. Dr. Furst received his MD from Johns Hopkins University, where he also completed his internship and residency. He completed two fellowships, one in Rheumatology at UCLA Medical Center, and

[view full biography](#)**David E Fisher**

Chief, Dermatology Department

Director, Melanoma Program MGH Cancer Center



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David E. Fisher, MD, PhD, a laboratory researcher, clinician and academic, is Chief of the Massachusetts General Hospital Department of Dermatology, Director of the MGH Cutaneous Biology Research Center and Director of the Melanoma Center at MGH. A Professor of Dermatology and of Pediatrics at Harvard Medical School, Fisher came to the MGH from the Dana-Farber Cancer Institute, where he previously directed the Melanoma Program. He obtained undergraduate degrees at Swarthmore College and the Curtis Institute of Music, his MD at Cornell, and PhD at Rockefeller University (labs of Henry Kunkel and Gunter Blobel). He trained clinically in Internal Medicine at [view full biography](#)



### Beom Joon Kim

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Dr. Beom Joon Kim is a head professor in the Department of Dermatology at Chung-Ang university medical center. He received his medical degree from College of Medicine, Chung-Ang University in Korea. And He was completed Doctorate of Philosophy in 2007 at Dermatology of Chung-Ang University. He has been appointed to be a editorial in many international journals such as Journal of the American Academy of Dermatology and International Journal of Dermatology from 2008 to 2013. Also, He published about 60 SCI leveled papers. In 2007, he received Dr. Paul Janssen Award, Korean Dermatological Association. He was selected as International Health [view full biography](#)



### Ahmad Awada

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Professor Ahmad Awada studied Medicine at the Universite Libre de Bruxelles (ULB), Belgium. He did a specialisation in Internal Medicine and Medical Oncology at Jules Bordet Institute (under the supervision of Professor Jean Klastersky), in Brussels, until 1992 ('La plus grande distinction'). During his specialisation, he also followed trainings in the clinical development of new therapies and new anticancer drugs, mainly in breast cancer under the supervision of Professor Martine Piccart. To deepen his training, he stayed in the Netherlands (New Drug Development Office, Free University, Amsterdam) and in San Antonio, USA (Institute for Drug Development, under the direction of [view full biography](#)

### Robin L. Thurmond



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Robin L. Thurmond, Ph.D. is the Early Development Portfolio Leader for Rheumatology and Psoriasis with the Clinical Research group at Janssen Research & Development in La Jolla, CA. Prior to that he was a Research Fellow with the Immunology Drug Discovery group at the same site. Dr. Thurmond's research involves investigation of novel mechanisms of action targeting new anti-inflammatory medicines for diseases such as asthma, atopic dermatitis and rheumatoid arthritis. Dr. Thurmond is a recognized expert in histamine receptors and their role in inflammation with over 90 scientific articles, reviews and book chapters as well as the editor of a

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**Eve Judith Lowenstein**  
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Dr. Eve Lowenstein grew up in Israel and Long Island. She graduated with highest honors from Queens College, having majored in Chemistry and literature, religion and philosophy of the Western Tradition. She completed the New York University School of Medicine's Medical Scientist Training Program, where she earned a MS (1992), a PhD (1994) in Cellular and Molecular Biology and her MD (1995). As a graduate student, Dr. Lowenstein made a significant discovery of the gene Grb-2, important in cell signaling and cancer growth. Dr. Lowenstein was Chief of Dermatology at Brookdale University Hospital for over 7 years. She is

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**Tchernev Georgi**  
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Professor Georgi Tchernev graduated his medical education in 2001 at the American University 'Benjamin Franklin' in West Berlin. Then applied and was approved for a PhD student in the Department of Dermatology, Venereology and Allergology under the leadership of Prof. Dr. Constantin Orfanos and Prof. Dr. Christoph Geilen. During this time he worked in parallel and as an assistant doctor/resident at the University Hospital Benjamin Franklin, Departments of Dermatology, Venereology and Allergology. From 2004 to early 2006, he is resident in the Departments of Dermatology, Venereology, Allergology and Immunology Municipal Hospital Dessau, Academic Teaching Hospital of the University 'Martin Luther'

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**Ivana L. de la Serna**Associate ProfessorDepartment of Biochemistry and Cancer BiologyUniversity of Toledo College Of MedicineCollege Of Medicine, University of ToledoUSATel: 419-383-4111

Dr. Ivana L. de la Serna is an Associate Professor at the University of Toledo College Of Medicine and Life Sciences, Department of Biochemistry and Cancer Biology. Her research interests: In eukaryotes, DNA is packaged into chromatin, the basic unit of which is the nucleosome. SWI or SNF enzymes are multiprotein complexes that alter chromatin structure in an ATP dependent manner and are involved in the regulation of gene expression. Components of the SWI or SNF complex are essential for mouse development and play important roles in several human cancers. To better understand the mechanisms by which SWI or SNF [view full biography](#)

**Eduardo Nagore**Associate ProfessorMelanoma UnitDepartment of DermatologyInstituto Valenciano de OncologiaValencia, SpainTel: +34-961114015

Eduardo Nagore, is an Associate professor at the Universidad Catolica of Valencia, Spain. Dermatologist since 1997, received his Ph.D. (in Medical Sciences) from the Universitat de Valencia in 2007. His clinical practice takes place at the Instituto Valenciano de Oncologia, an oncology center where has developed most of his professional career. His research interest and area of expertise is skin cancer, particularly melanoma. His research work has resulted in 160 peer-reviewed papers.

**Salvador Gonzalez Rodriguez**Associate ProfessorDepartment of Medicine and Medical SpecialtiesUniversity of Alcala de HenaresMadrid, SpainTel: 34-617397489

Salvador Gonzalez, accredited Full Professor by the Quality and Accreditation Evaluation Spanish Agency, serves as Associate Professor of Medicine Department at Alcala University in Madrid, Spain and Visiting Faculty Member in the Dermatology Service at the Memorial Sloan-Kettering Cancer Center in New York, USA, and. Before, he also

joined the faculty of the Dermatology Department at Harvard Medical School, Boston for over 10 years. Dr Gonzalez research interests focused on skin cancer chemoprevention, photoprotection and optical diagnoses. His scientific contribution has a hirsch factor of 29, a total number of citations of 2,421 and an accumulated total impact [view full biography](#)

**Yan-Hua Liang**

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Yanhua Liang, M.D., Ph.D., Associate Professor in the Department of Dermatology, Nanfang Hospital at Southern Medical University, China, received his Ph.D in Dermatology in 2007. He had his 2-year postdoctoral training at The Jackson Laboratory U.S.A before jointing the faculty of Yale University School of Medicine in 2010. He has identified CYLD1 gene as the disease gene of multiple familiar trichoepithelioma, and XBP1 as genetic risk factor for vitiligo in Chinese Hans. He has done in-depth research to understand the biological function of SHARPIN. Except for molecular basical studies, he has also developed new biological materials and techniques for transdermal

[view full biography](#)**Megan Eileen Morrison**

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Megan Morrison is an Assistant Clinical Professor of Dermatology at Michigan State University. Dr. Morrison specializes in Mohs Micrographic Surgery and has been invited to lecture at multiple National and State conferences. Dr. Morrison completed her Residency in Dermatology and Fellowship in Mohs Surgery at St. Joseph Mercy Hospital. Dr. Morrison has published many manuscripts, is a guest editor for multiple journals and has coauthored a book on Occupational Dermatology. Dr. Morrison is presently a member of the American Osteopathic College of Dermatology, the American Academy of Dermatology and the American Society of Mohs Surgeons. Dr. Morrison's research focuses on [view full biography](#)

**Emma Jean Mildered Taylor**

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Emma Taylor, M.D. is an Assistant Clinical Professor of Dermatology and Dermatopathology at UCLA. She has been involved in research investigating the beneficial properties of natural products, such as resveratrol in grapes for acne, which resulted in an international patent application. She has published in high impact journals such as Nature, Journal of the American Academy of Dermatology, and Dermatology and Therapy. She has been featured in Science World Report, WebMD, Dermatology Times, Glamour, Huffington Post, Women's Health magazine, Men's Health Magazine, Fox News, and more for her expertise in dermatology. She is currently involved in research relating [view full biography](#)

**Daisuke Onozuka**

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Daisuke Onozuka is an Assistant Professor of the Department of Health Care Administration and Management at the Kyushu University Graduate School of Medical Sciences. Dr. Onozuka received his Ph.D. (in Medical Sciences) from the Kyushu University Graduate School of Medical Sciences, Japan. He was previously in the Department of Public Health and Medical Affairs at Fukuoka Prefectural Government, and Fukuoka Institute of Health and Environmental Sciences. His area of expertise pertain to infectious disease epidemiology and Yusho disease. My research interests cover most of environmental epidemiology. Current substantive research topics of interest, on which my work in collaboration with both [view full biography](#)

**Faramarz H. Samie**

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Faramarz Samie, MD, PhD is the director of Mohs Surgery and Cutaneous Oncology at Dartmouth-Hitchcock Medical Center and an Assistant Professor of Surgery (Dermatology) at the Geisel School of Medicine at Dartmouth College. He has published in multiple journals and also serves on editorial boards related to his field. Dr. Samie received a BS in Bioengineering from Syracuse University and his MD and PhD from SUNY Upstate Medical University. He completed his internship in internal medicine at SUNY Upstate Medical University and residency in dermatology at the University of Rochester. He then completed a fellowship in Mohs surgery and cutaneous oncology at [view full biography](#)

**Amir Feily**

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Amir Feily is dermatologist and researcher in Skin and Stem Cell research Center of Tehran University of Medical Sciences, Tehran and Department of Dermatology of Jahrom

University of Medical Sciences, Jahrom, Iran. He is the member of International Society of Dermatology, European Academy of Dermatology, Editorial Board of Dermatology Report, Journal of Pigmentary disorder, Aperito Journal of Dermatology and Associated editor of Asian Journal of Dermatology. He is also the reviewer of many dermatologic journals such as British journal of Dermatology, International Journal of Dermatology, JEADV and etc.

He has More than 70 high quality papers in Dermatology [view full biography](#)



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Dr. Taheri is a house staff in Department of Internal Medicine at Wake Forest School of Medicine. He completed his medical school, internship, and dermatology residency at Tehran University of Medical Science. He joined the Center for Dermatology Research at Wake Forest University as a researcher in 2012. Dr. Taheri serves on the editorial board of Journal of Dermatological Treatment and Journal of Experimental Dermatology and Clinical Research. His chief clinical and research interests are psoriasis, eczema, autoimmune diseases and the dermatologic manifestations of systemic diseases, wound healing and scar prevention, as well as electrosurgery. He is a researcher and expert in the [view full biography](#)



**Catherine Olsen**

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Dr. Catherine Olsen is a Senior Research Officer from the Cancer Control Group of the QIMR Berghofer Medical Research Institute and an Honorary Senior Research Fellow with the University of Queensland. Her primary area of research is melanoma and cancers of the skin, focusing on the environmental and genetic factors that cause these cancers.

**Mohamed Hassan**

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**Cancer Institute**

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**University of Mississippi Medical Center**

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Dr. Mohamed Hassan is the leader of the Molecular Tumor Therapy group at 'Institut National de la Sante et de la Recherche Medicale' (INSERM), and Dental Faculty, University of Strasbourg, Strasbourg, France, and Cancer Institute, University of Mississippi Medical Center, Jackson, Mississippi, USA. He was the Group leader of the Molecular Tumor Therapy up to Dec. 2011 at the University Hospital of Duesseldorf, Germany. Currently, He is Group leader of. Dr. Hassan earned his Bachelor of Science in chemistry and Zoology from the University of Zagazig, and earnd BSc, MSc, in Biomedical Science from the University of duesseldorf. Dr. Hassan [view full biography](#)

**Haichang Li**

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**Department of Surgery**

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**The Ohio State University Wexner Medical Center**

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Haichang Li, DVM, PhD is an assistant professor in the department of surgery, The Ohio State University Wexner Medical Center. His research focuses on skin wound healing, scarring, and epidermal stem cell. He obtained his Ph.D. degree from Gifu University, Japan. Dr. Li also holds a veterinary medicine (D.V.M) degree from China. Following his Ph.D. studies in developmental biology and genetics, He finished his postdoc training in neuroscience at the Riken-Brain Science Institute of Japan, and Rutgers University-Robert Wood Johnson Medical School of USA. In addition, Dr. Li is also a registered patent agent of US patent and Trademark Office [view full biography](#)

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Timothy Falla  
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Journal of Dermatology Research and Therapy: 89.34

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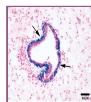
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**Skin Manifestations and SARS-CoV-2 Infection: First the Egg or the Chicken?**

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Fabiana Tezza, MD, PhD, Giustina De Silvestro, MD, and Gino Gerosa, MD

Article Type: Case Report | First Published: June 27, 2020

In Europe the outbreak due to SARS-CoV-2 took place in Lombardia and Veneto regions which are located in northern Italy.

As April 30th, in Italy there were a total of 205,463 SARS-CoV-2 positive cases, with 18,149 in-hospital patients and 27,967

COVID-19 related deaths. Patients with COVID-19 have a wide range of symptoms: Fever, dry cough and dyspnea being the most common; other symptoms can include myalgia or fatigue, runny nose, diarrhea and vomiting. Some patients might experience anosmia an...

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## Pemphigoid Gestationis: A Third-Trimester Multigravida with a Severe Disease (articles/ijdrt/journal-of-dermatology-research-and-therapy-ijdrt-6-086.php?jid= ijdr)

López Gutiérrez Andrea Fernanda, Gonzalez Saldaña Sandra, Mendez Flores Raul Gerardo, Gomez Cevallos Teresa Aranzazu and Salas Nuñez Lupita Nazaret

Article Type: Case Report | First Published: June 13, 2020

Pemphigoid gestationis is a rare autoimmune vesiculobullous disease that occurs during pregnancy or postpartum. It is caused by circulating IgG autoantibodies that target the extracellular non-collagenous domain of the hemidesmosomal protein BP180. Urticular papules and plaques with posterior development of tense vesicles and bullae with an erythematous background are the hallmark of the disease. It affects both primigravidas and multigravidas and can occur in any trimester or postpartum but pr...

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## Manuka Honey and Pediatric Patients: A Review (articles/ijdrt/journal-of-dermatology-research-and-therapy-ijdrt-6-085.php?jid= ijdr)

Paola Martina Marra, DDS, MS, Rossella Santoro, MS, Giuseppe Diana, MS, Angelo Itro, MD, MS and Annalisa Itro, PhD

Article Type: Review Article | First Published: June 11, 2020

Manuka is a monofloral honey with New Zealand and Australian origins. It takes its name from the L. scoparium or tea-tree (manuka or tea tree) plant, whose flowers rich in pollen and nectar feed the bees during the production of honey. To be labeled as "New Zealand manuka honey", bees must use at least 70% of the pollen and nectar from manuka. This honey has nutritional properties similar to those of other types of honey even if, containing some active ingredients, it seems to inherit many phytot...

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## Hand Rejuvenation with CaHA Guided By Ultrasound (articles/ijdrt/journal-of-dermatology-research-and-therapy-ijdrt-6-082.php?jid= ijdr)

Barbara Poggi

Article Type: Case Report | First Published: May 25, 2020

The effectiveness of the use of calcium hydroxyapatite for hand rejuvenation is well documented in the literature, but studies on anatomy are conflicting. The aim of the present study is to show the application of calcium hydroxyapatite in dorsal hand by distal proximal technique and concomitant visualization by USG 15 Mhz, combined to literatura to define, ensuring the injection safety in the correct plan....

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### Longstanding Eruptive Keratoacanthoma of the Neck Arising From a Tattoo (<articles/ijdrt/journal-of-dermatology-research-and-therapy-ijdrt-6-084.php?jid=ijdrt>)

Misbah Yehya, DO, Arnaud Batchou, OMS and Thomas Simpson, MD

Article Type: Case Report | First Published: June 10, 2020

Keratoacanthoma (KA) is a cutaneous neoplasm arising from follicular hair cells on sun exposed regions of the skin, particularly the head and neck. Their pathology remains controversial thus distinguishing between KA and squamous cell carcinoma (SCC) has proven to be difficult over the years. Some expert pathologists consider KA a precursor to SCC, while others define it as a well-differentiated variant of SCC or an abortive malignancy with low potential of progression to a full invasive squamou...

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### Linear Iga Bullous Dermatosis in Crohn's Disease: A Case Report (<articles/ijdrt/journal-of-dermatology-research-and-therapy-ijdrt-6-081.php?jid=ijdrt>)

Ruba Ibrahim, MD, Gil Armoni, MD, Georgina-Maria Sarika, MD and Vered Molho-Pessach, MD

Article Type: Case Report | First Published: May 20, 2020

Linear IgA bullous dermatosis (LABD) is a rare autoimmune, vesiculo-bullous skin disease. It has been previously reported in association with inflammatory bowel disease, particularly ulcerative colitis. We report a case of LABD in a patient suffering from Crohn's disease who received tumor necrosis factor- $\alpha$  inhibitor therapy and developed LABD several months later. Linear IgA bullous dermatosis (LABD) is a rare autoimmune, vesiculobullous skin disease, characterized by linear deposition of IgA

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Rafaela Pais Serras, Marta Duarte, Maria Manuel Mendes and Maria Manuel Mouzinho

Article Type: Case Report | First Published: May 01, 2020

Bowen's disease is a squamous cell carcinoma in situ that can degenerate into an invasive squamous cell carcinoma. Early diagnosis and treatment are crucial. There are several therapeutic options available but the most successful is surgical excision with a safety margin. We present a case report of an atypical Bowen's disease in an uncommon location, for which was performed surgical excision with 1 cm of safety margin and then the secondary defect was covered by a skin graft. No complications w...

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Yang Meng, Huang Yaohui, Zhu Qinghuan, Lin Xiujuan, Pan Yanbin and Li Jianmin

Article Type: Case Report | First Published: March 30, 2020

Condyloma acuminata (CA), or anogenital verrucae, is a common sexually transmitted disease associated with human papilloma virus infection. It is principally transmitted through sexual intercourse and frequently occur in adolescents or adults. In the last decades, cases of CA in children gradually have increased that may be related to sexual abuse, vertical transmission and close contact with infected individuals. Guidelines...

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# Albumin, Important Therapy & When to Use It in Ten Patients (Adult & Child): Case Report (articles/ijdrt/journal-of-dermatology-research-and-therapy-ijdrt-6-078.php?jid=ijdrt)

Nathasia and Sukmawati Tansil Tan

Article Type: Case Report | First Published: February 03, 2020

Toxic epidermal necrolysis (TEN) is a life-threatening drug reaction that requires immediate medical treatment. Mortality due to TEN cases is quite high until now and the main cause reported is multiple organ dysfunction syndrome. A 7-year-old child, was diagnosed TEN with 86% blistered skin, after receiving Metampiron. Given 20% albumin 50 ml from the first day treated until 20 days, also fluid resuscitation, steroids, antibiotics, vitamin C, neurobion, paracetamol, antihistamines, oral hygiene,...

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## Comparative Study of the Online Over-The-Counter Hair Loss Products

(articles/ijdrt/journal-of-dermatology-research-and-therapy-ijdrt-6-077.php?jid=ijdrt)

Abdullah Alyoussef

Article Type: Original Article | First Published: January 04, 2020

There are tremendous amount of the overthe- counter (OTC) hair loss products available online and widely purchase all over the world by many consumers. We conducted this study to evaluate some popular and widely used OTC hair loss products that are introduced by famous online retailer websites. Most of hair loss products are natural products, vitamins, minerals, amino acids and proteins. The products found in the top sellers are different between the online retailers regarding their type, side, ...

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## CASE REPORT

## Albumin, Important Therapy & When to Use It in Ten Patients (Adult & Child): Case Report

Nathasia\* and Sukmawati Tansil Tan

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### Abstract

Toxic epidermal necrolysis (TEN) is a life-threatening drug reaction that requires immediate medical treatment. Mortality due to TEN cases is quite high until now and the main cause reported is multiple organ dysfunction syndrome. A 7-year-old child, was diagnosed TEN with 86% blistered skin, after receiving Metampiron. Given 20% albumin 50 ml from the first day treated until 20 days, also fluid resuscitation, steroids, antibiotics, vitamin C, neurobion, paracetamol, antihistamines, oral hygiene, steroid and antibiotic ointment for body, eye ointment, woundcare, and high nutritions.

The other case, 33-year-old woman, was diagnosed TEN with 100% blister skin, due to Phenytoin. Given 25% albumin 100 ml from the first day to 20 days. Both patients recover without complications. In TEN, hypoalbumin often occurs due to eroded skin. Hypoalbumin can reduce organ function and drug effectiveness. Drugs that are usually bound to protein become free in plasma and metabolism in hepatic become more rapid. Immediate albumin therapy can prevent this and reduce patient mortality. The albumin also plays a role to accelerate skin regeneration.

### Keywords

Immediate albumin therapy, Mortality, TEN

### Introduction

TEN (Toxic Epidermal Necrolysis) is an acute life-threatening drug reaction and is characterized by involvement of the mucous membrane and skin, where extensive necrosis can occur and erode the epidermis layer [1-3]. Most causes of this disease are due to drugs. This disease is a rare case, there are about 5-6 cases per year with a high mortality rate around more than 50% [1]. Severe TEN cases can be accompanied by systemic complications resulting in organ failure and death [3]. Her-

mann, et al. [4] reported that increased length of stay and mortality at hospital associated with low albumin levels obtained within 48 hours of admission, because albumin levels may decrease early in severe illness and even lower after 48 hours admission [4]. Albumin can maintain organ function, increase drug effectiveness, reduce mortality and accelerate skin regeneration [5-7].

### Case Description

A 7-year-old girl, with the complaints of appearing red spots all over the body, blistered mouth, peeled, fever, red eyes, and itching for one day after took a mixed drug of paracetamol, methampiron, cold and cough medicine. This complaint was felt for the first time. History of systemic disease, drugs or food allergy is denied. She had a complete immunization history.

In generalized status, the patient was comatoses and looked seriously ill. Weight about 34 pounds. Vital signs, pulse 175 times a minute, breathing 30 times a minute, and temperature 39.1 °C. Normal physical examination. Dermatological status, facial, anterior and posterior thorax, abdominal, bilateral brachial, bilateral antebracial, perineum, bilateral femoral, there are erythematous macules, well-defined, multiple numular-plaque sizes, and also bullae, purpura, erosion, and epidermolysis; orbital: bilateral conjunctival hyperemia; labium oris: Erosion and black crust; genital: Erosion (total 86% blistered skin). Laboratory tests show, hemoglobin 14.2 g/dL, leukocytes 10.400/uL, platelets 403.000/mm<sup>3</sup>, Albumin 3.6 g/dL, ureum 48 mg/dL, creatinine 0.7 mg/dL, sodium 133 mEq/L, potassium 4.6 mEq/L, chloride 101 mEq/L.

Albumin 20% intravenous 50 ml once a day for twen-

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ty days was given, as well as Ringer's Lactate solution 1500 cc in 24 hours, systemic drugs such as Metylprednisolone 62.5 mg twice a day, Gentamicin 60 mg once a day, Amikacin 250 mg once a day, Vitamin C 500 mg, Neurobion, Paracetamol 175 mg, Loratadine 5 mg twice a day. For lips, Mometason ointment and Kenalog®, Kloderma 50 grams + Mupirocin ointment 50 grams for body area, and Cendo Xitrol® eye ointment. Also closed gauze wounds, aspirated bullae, and given high calories and high proteins nutrition.

The other case, a 49-year-old woman, with complaints of full body blisters for 5 days, arose suddenly after taking phenytoin drug. This complaint was felt for the first time. History of systemic disease, drugs or food allergy is denied. She got the drug when she was first diagnosed with epilepsy three weeks ago.

The patient was *compos mentis* and looked seriously ill. Vital signs, tension 110/70 mmHg, pulse 88 times a minute, breathing 20 times a minute, and temperature 38.1 °C. Normal physical examination. Dermatological status, facial, anterior and posterior thorax, abdominal, bilateral brachial, bilateral antecubital, perineum, bilateral femoralis, bilateral cruris, there are

erythematous macules, well-demarcated, multiple nodule-plaque, and also bullae, purpura, erosion, crust, and epidermolysis; orbital: bilateral conjunctival hyperemia; labium oris: erosion and black crust; genital: erosion (total 86% blistered skin). Laboratory tests show, hemoglobin 12.8 g/dL, leukocytes 8.100/uL, platelets 237.000/mm<sup>3</sup>, Albumin 2.2 g/dL, ureum 25 mg/dL, creatinine 1.0 mg/dL, sodium 127 mEq/L, potassium 4.6 mEq/L, chloride 91 mEq/L.

Patient was treated with Albumin 25% intravenous 100 ml once a day for twenty days, as well as Ringer's Acetate solution 2000 cc in 24 hours, systemic drug such as Methylprednisolone 125 mg twice a day, Ceftriaxone 2 gr once a day, Gentamicin 80 mg once a day, Vitamin C 500 mg, Neurobion, Paracetamol, oral medication Loratadine 10 mg twice a day, Tantum Verde® for mouth rinses, Kloderma® 50 grams + Mupirocin ointment 50 grams for body area. For eye, and Cendo Xitrol® eye ointment. Also closed gauze wounds, aspirated bullae, and given high calories and high proteins nutrition.

Both patients recovered without complications and were discharged from the hospital (Figure 1, Figure 2, Figure 3, Figure 4, Figure 5 and Figure 6).



Figure 1: Early treatment period.



Figure 2: Skin and mucosal conditions in healing phase.



**Figure 3:** Patient condition after 1 week discharge from the hospital.



**Figure 4:** Early treatment period.

## Discussion

TEN is characterized by eroded epidermis skin and mucositis [1,2]. The cause of TEN in both cases due to drugs is based on a history of previous drug consumption and after the drug stop, the skin lesions begin to heal.

The massive loss of fluid, albumin, and protein can occur in extensive skin loss, besides the open dermis

skin layer will release serum so that it bleeds easily, leakage of albumin happens, and easily get infected [2,3,8]. Various complications can occur in TEN such as dehydration, sepsis, pneumonia, and also multiorgan dysfunction such as ulceration and gastrointestinal perforation, acute renal failure, thromboembolism, and DIC (Disseminated Intravascular Coagulopathy) [3,9,10]. In both of these patients fluid, albumin and protein loss occurred. In the case of children, albumin



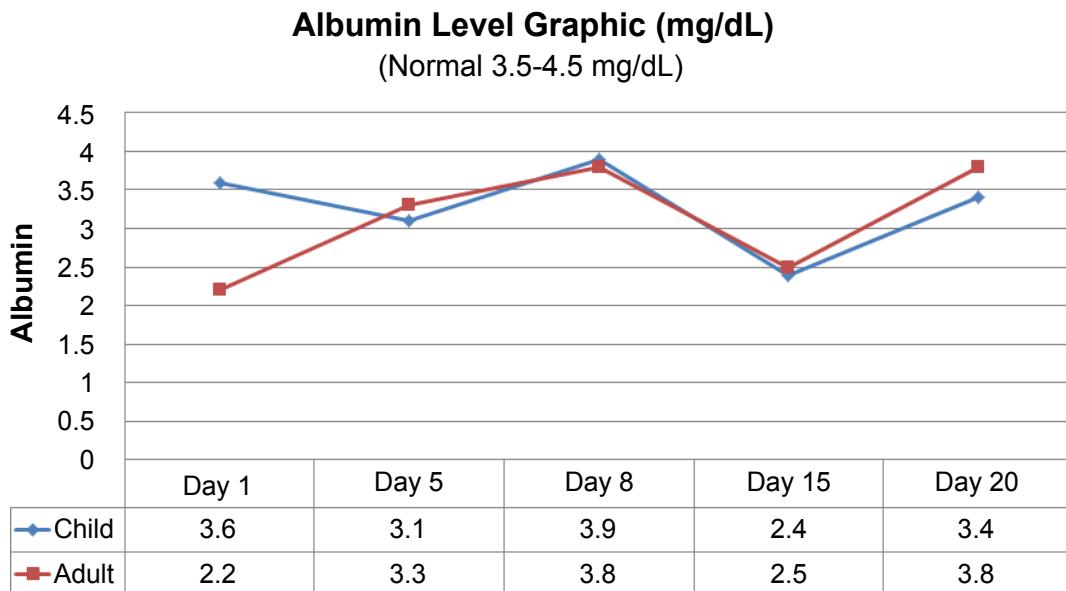
**Figure 5:** Skin and mucosal conditions in healing phase.



**Figure 6:** Patient condition after 1 week discharge from the hospital.

at admission is 3.6 mg/dL, but after treatment albumin levels tend to fluctuate, until the lowest albumin level obtained 2.4 mg/dL on day-14 of treatment. In adult case, albumin at admission is 2.2 mg/dL, during treatment albumin levels also tend to fluctuate, but have never been found lower than initial results. In this patient, complete skin healing occurs at 3 weeks after treatment. When healed, the hypo- and hyperpigmented parts of skin are visible **Graphic 1**.

There are not many journals that discuss the importance of using intravenous albumin in patients with NET, maybe because of the albumin level are seen to be normal at early hospital admission. Albumin is the largest plasma protein and is synthesized in the liver. Albumin production is inhibited by proinflammatory mediators namely interleukin-1 (IL-1), interleukin-6 (IL-6), and TNF (Tumor Necrosis Factor). Albumin is important to maintain oncotic pressure (80%) which can prevent vascular leakage from intracellular to ex-



**Graphic 1:** Albumin level progress.

tracellular where it can be at risk of edema [5,11]. Albumin also functions to transport various substances, namely fatty acids, metals, hormones, iron, bilirubin, and drugs medicine. When hypoalbumin occurs, drugs that bind to proteins become free circulating in the blood, so the levels of drugs in the blood increase and increase hepatic metabolism [11].

Hypoalbumin often occurs in critical patients, in care, and elderly, which may occur due to decreased production and/or lost through the kidneys, skin, gastrointestinal, or increased catabolism or extravascular. [5] Amit Akirov, et al. [6], states that administration of albumin can increase life up to 34%, compared to administration of crystalloid fluids alone. Albumin also prevents acute kidney injury (AKI), hypotension, and general edema [5,7]. Albumin also plays a role in accelerating wound healing [12]. In both patients 20% (child) or 25% (adult) albumin was applied, once a day from the first day to 20 days of treatment. Although initial albumin levels are still within normal limits, this is to avoid albumin leakage that occurs within a few days due to epidermolysis. Albumin can also make the performance of the drugs given work better and speed up the recovery and healing of patient's wounds. Moreover, it can reduce the excessive use of crystalloid fluids and also prevent acute kidney damage due to dehydration. As a result both patients recovered without complications.

## Conclusions

Two cases of toxic epidermal necrolysis in 7-year-old children and 49-year-old women have been reported. Diagnosis is based on anamnesis, physical examination and laboratory examination. Giving albumin for 20 days from the beginning of treatment can maintain organ function, increase drug effectiveness, reduce mortality and accelerate skin regeneration.

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