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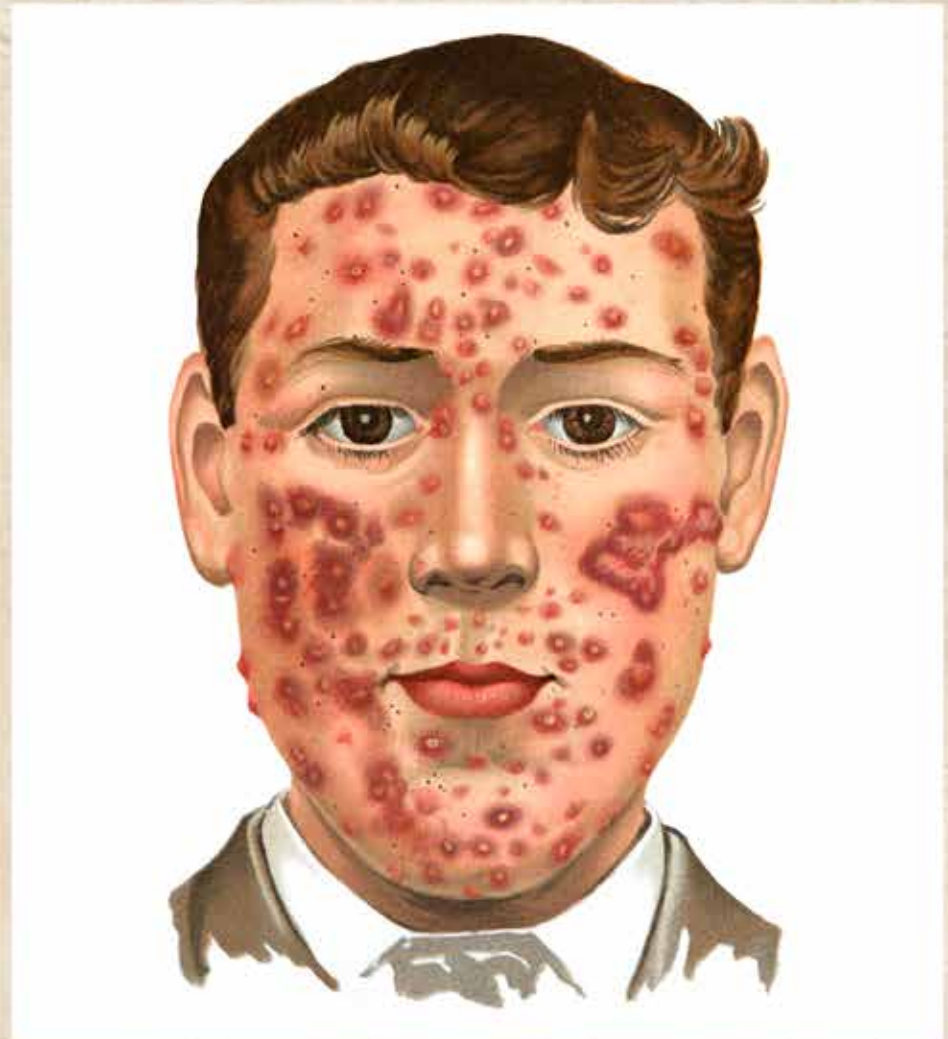

DERMATOLOGY
Past & Present

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Spotlight:
Academic Medicine

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Dermatology
A Look Back

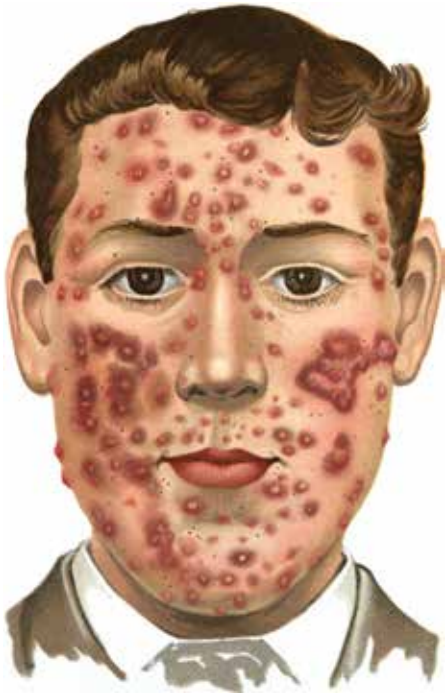
By Sumayah Taliaferro, MD

While there have always been advancements throughout the history of medicine, the past two centuries have marked an era of rapid change. Modern advances now emerge so quickly that the origins of therapeutic and diagnostic modalities are frequently unappreciated and forgotten.

The history of medicine, once included in the curriculum of medical schools and some post-graduate training programs, has been largely discontinued. Now, many physicians emerge from training with very little knowledge of the genesis of their chosen field. Hopefully, a look at the history of dermatology will satisfy a few curiosities, but more importantly, inspire persistent innovation.

Dermatology, like other specialties, peeled off of general medicine and has evolved swiftly. Given the vastness of medicine, it is no surprise that the need for physicians to focus more specifically on organ systems occurred in the early and mid-19th century. Dermatologists, specialists devoted to the care of the skin, which is the largest organ of the body and its appendages, remain vital to medicine.

Charged with detecting and treating skin cancer and the myriad conditions afflicting the skin, dermatologists contribute greatly to the well-being of patients and serve as important vanguards of health. This cannot be overstated, as recently the public image of dermatologists has fallen under siege and at times grossly underestimated by laypersons and even by colleagues in other specialties of medicine.



I truly hope you enjoy this special edition of *Atlanta Medicine*. It highlights aspects of the history of dermatology, covers advances in medical and surgical dermatology, brings attention to lasers in dermatology, reports on a few updates in cosmetic and aesthetic dermatology, and provides an update in the field of dermatopathology.

A Slice of Dermatology History

- The American Dermatological Association was founded in 1876. President: J.C. White. Vice Presidents: L.A. Duhring and R.W. Taylor. Secretary: L.D. Bulkley. Treasurer: J.N. Hyde. The site for the first meeting, held in 1877 was Niagara Falls.[1]
- In 1922, dermatology became a distinct section of the Southern Medical Association (section on Dermatology and Syphilology changed to Section on Dermatolog in 1961)[2]
- The American Board of Dermatology, Inc. was founded in 1932.
- The Southeastern Dermatological Association was founded in 1935.
- The American Academy of Dermatology was founded in 1938. Currently, with more than 20,000 members, it is one of the largest organizations of dermatologists in the world.[3]

A Look at the History of Dermatology in Georgia

In the early days, dermatologists in Georgia gathered annually at the Medical Association of Georgia annual meeting as part of the dermatology division of the Medical Association of Georgia (MAG), the state medical society. The Georgia Society of Dermatologists (GSD), now the Georgia Society of Dermatology and Dermatologic Surgery (GSDDS), was formed in 1958 with approximately 20 dermatologists in Georgia who met at the end of the MAG meeting in 1958.

This gathering, taking place at the home of Dr. Rem Reifler, turned into an organizational meeting for the early formation of the GSD. The first president was Dr. Herbert Alden. Reifler agreed to serve as secretary and held this role for 15 years. He is remembered as the Father of the Georgia Dermatology Society.[4]

Dermatology began in Atlanta as early as the 1890s. Dr. Charles Bernard Wolff Sr. became the first dermatologist in Atlanta when he opened practice in 1893. Wolff was born in

Virginia and completed medical training at the University of Virginia School of Medicine. He trained in New York and Heidelberg, Germany as well as Paris and London before settling into practice in Atlanta. This was at a time when there were only a few dermatologists in the United States.[5]

The Department of Medicine at Emory University formed a Division of Dermatology in 1961, and a formal training program in dermatology began. The first dermatologists to provide this early training included Drs. A.C. Brown, Sidney Olansky, Hiram Sturm and Jordan Whyte. In 1964, Hiram M. Sturm, MD, became the first president of the Atlanta Association of Dermatology, now the Atlanta Association of Dermatology and Dermatologic Surgery (AADDS).

In 1977, Dr. Henry Earl Jones served as the first Chair of Dermatology at Emory, when the division of dermatology expanded to a full department.[6] The Department of Dermatology at the Medical College of Georgia was founded in 1967, along with its residency program. Dr. J. Graham "Skee" Smith, a founding editor of the Journal of the American Academy of Dermatology,[7] was its first Chair of Dermatology.[8]

Great Pioneers in Dermatology

There are so many giants of dermatology, numerous extraordinary minds who contributed to the field, that it is impossible to name them all. Only a few preeminent ones are reviewed here, beginning with early European influencers.

❖ J. L. B. Alibert (1768 -1837)

Alibert and Laurent Théodore Biett (1781–1840) were instrumental in converting the Hopital Saint-Louis in Paris into a facility focused on the care of patients with skin disease. In 1801, it became one of the first centers in the world mainly devoted to the study of cutaneous disease. Alibert was the first to describe and name mycosis fungoides and an early describer of keloids on the skin.

❖ Ferdinand von Hebra, MD (1816–1880)

Hebra is often described as the founder of modern dermatology. A highly regarded physician in Vienna in the 1800s, Hebra became a world leader in dermatology. He taught students in Europe and all over the globe in his clinic in Vienna. Many American physicians traveled abroad to train with him. He made contributions to education on tinea, cutaneous tuberculosis, xanthomas, pruritus and eczema. His text, translated into English, Atlas of Skin Diseases, was popular the world over.

❖ Moritz Kaposi, MD (1837–1902)

Hebra's successor was his son-in-law, Kaposi. Kaposi was a professor and head of the dermatology clinic at the University of Vienna. Kaposi was the first to describe the vascular neoplasm that became known as Kaposi sarcoma and was among the first to describe xeroderma pigmentosa, herpes zoster and folliculitis keloidalis. **Heinrich Auspitz (1835–1886)**, known today for the Auspitz' sign in psoriasis, was one of Hebra's students. Hebra and Kaposi also taught **Paul Gerson Unna, MD (1850–1929)**, who became world famous for his many contributions to dermatology and histopathology of the skin (dermatopathology).[9]

❖ Henry Daggett Bulkley, MD (1804–1872)

American dermatology had its early start in New York City when in 1836, Bulkley established and taught at the Broome Street Infirmary for Diseases of the Skin – the first institution in the United States established exclusively to focus on skin disease. Bulkley helped form the section on Dermatology and Syphilology of the American Medical Association.[10]

❖ Noah Worcester, MD (1812-1847)

Noah Worcester, after studying abroad, became chair of Dermatology at The Medical College of Cleveland. He wrote the first dermatology textbook that was published and dispersed in the United States, A synopsis of symptoms, diagnosis, and treatment of the more common and important diseases of the skin. Worcester died at age 35 from tuberculosis.

❖ James C. White, MD (1833–1916)

In the late 1860s at Harvard, White became the first full professor of dermatology in the United States and the first chair of an independent dermatology department. He was a prolific writer and is credited as the initial describer of keratosis follicularis (Darier-White disease). He was also the first president of the American Dermatological Association and one of its founders.

❖ Louis A. Duhring, MD (1845–1913)

Duhring was the first dermatologist in Philadelphia and a professor at The University of Pennsylvania for 40 years. He was one of the founders of the American Dermatological Association. Known for his description of dermatitis herpetiformis (Duhring's disease), he authored major dermatologic tests, most notably Cutaneous Medicine, and numerous publications. In 1877, Louis Duhring published A practical treatise on diagnosis of the skin, which was one of the more popular textbooks in the field in its time.[11]

❖ William Allen Pusey, MD (1865–1940)

Known for his giant personality and masterful command of the field of dermatology, William Pusey was a highly influential dermatologist in Chicago in the early 20th century. At an early age, he became professor of dermatology at the College of Physicians at the University of Illinois. His achievements are numerous. William Pusey was an earlier pioneer of the use of cold therapy to treat skin disease in the form of carbon dioxide snow. Notable publications include a textbook entitled The Principles and Practice of Dermatology (1907) and The History of Dermatology (1933). He was editor of

the Archives of Dermatology and the first dermatologist to serve as president of the American Medical Association.[12]

❖ Rose Hirschler, MD (1876–1940)

Hirschler was the first female professor of dermatology and chair of a department of dermatology. She was the only female of the founders of the American Academy of Dermatology. She was mentored by Jay F. Schamberg. After receiving her medical degree from the Woman's Medical College of Pennsylvania in 1899, Hirschler traveled to Europe and studied under Paul Unna. She and Loretta Joy Cummins are two of the first known female dermatologists in the United States.[13] ■

"If I have seen further it is by standing on the shoulders of Giants." – Isaac Newton in 1675

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-Sumayah Taliaferro, MD

This article is dedicated to Dr. Terry Sharpe (my dermatologist) and other Atlanta trailblazers in dermatology with whom I have had the privilege of working: Dr. Wesley Wilborn (1937-2013), the first African-American dermatologist in Atlanta and the South, Dr. Gloria Campbell D'Hue, the first African-American female dermatologist in Atlanta, and Dr. Rutledge Forney, first female practicing dermatologist to become president of the Medical Association of Georgia (MAG).

Little-Known Facts in Dermatology

By Sumayah Taliaferro, MD

Who invented sunscreen?

In the 1930s, an Austrian chemist named Franz Greiter introduced a sunscreen product called "Gletscher Crème," inspired by a severe sunburn experience. Continuing his research on the topic, Greiter introduced the SPF rating of sunscreen in 1962. One of the first synthetic sunscreens was used as early as 1928 and sold by Eugene Schueller, the founder of L'Oreal.

In the United States, the history of sunscreen use also began with the military's pursuit to protect soldiers from the harsh hot climate of the tropics during World War II. In 1944, an airman and pharmacist, Benjamin Green, developed a patented sunscreen called red veterinary petrolatum (known as Red Vet Pet). Coppertone purchased the patent and improved the formulation, making it more cosmetically acceptable. This is the ingredient in the "Coppertone Girl" brand popular in the 1950s.[1,2]

How did phototherapy begin for the treatment of skin disease?

Danish physician Niels Finson, hailed as the father of modern UV therapy, introduced phototherapy when treating patients with lupus vulgaris (cutaneous tuberculosis) with a "chemical rays" lamp in 1896. He was awarded the Nobel Prize in Medicine in 1903 for his work on this topic.

The use of light to treat disease states may date back to antiquity, but as far as the origins of photochemotherapy, it is reported that in Egypt, juice from the plant Ammi majus (also known as Queen Anne's Lace) was used to treat depigmented patches of vitiligo. The juice of the A. majus plant was rubbed on the patches followed by exposure to the sun. During the 1940s, research of the plant confirmed extractions of therapeutic levels of bergapten and methoxsalen, psoralen derivatives that are photosensitizing.

Professor Abdel Monem El Mofty at the University of Cairo in Egypt is credited for introducing methoxsalen and UV light for the treatment of vitiligo, heralding the modern use of PUVA (Psoralen plus UVA) in the treatment of skin disease. Thus began further research into the application of phototherapy, including UVB for psoriasis and photodynamic therapy. A collaboration of engineers, scientists and dermatologists led to the development of therapeutic UV light machines.

Today phototherapy, the use of artificial light sources for medical treatment, continues to be used in the treatment of vitiligo, psoriasis, eczema, pruritus and cutaneous T-Cell lymphoma, as well as a broad range of conditions such as neonatal jaundice and seasonal affective disorder. Early developments in phototherapy have likely fueled the science of novel treatments, such as the use of low laser light for hair loss.[3,4]

Who developed Retin-A?

Scientific knowledge of the benefits of vitamin A on the skin dates back to the 1920s and '30s, when formal research on retinol began. Dr. Albert Kligman is recognized for the development of Retin-A (tretinoin, all-trans retinoic acid) for acne in 1967. Kligman and James Fulton worked together at the University of Pennsylvania to study the effects of tretinoin.

Topically, tretinoin is commonly used around the world in the treatment of acne and wrinkles, as well as a multitude of other conditions. Tretinoin is also used orally in the treatment of cancers.[5,6,7]

When were topical steroids first used?

1952 was a groundbreaking year for dermatology with the introduction of hydrocortisone. While research on cortisone began as early as the 1930s, it was not until 1950, when Edward C. Kendall and Philip S. Hench won the Nobel Prize for their landmark discoveries of the structure and biological effects of hormones of the adrenal gland, that the use of topical steroids became more popular.

The Nobel Prize was shared with Tadeus Reichstein, who also completed research on cortisosteroids at that time. Very soon afterwards, the introduction of hydrocortisone in topical form revolutionized dermatology, truly changing the game for the treatment of numerous skin disorders. With the great many corticosteroid treatments available today, it is difficult to imagine working without this most essential part of the practice of dermatology.[8,9,10]

When did liposuction become popular?

Liposuction has been in the wheelhouse of procedure-oriented dermatologists for years. In 1986, dermatologic surgeon Dr. Jeffrey A. Klein developed the "tumescent liposuction technique," conducted under local rather than general anesthesia, with less surgical scarring and significantly reduced blood loss. Deemed safer and overall less risky than traditional liposuction, the tumescent technique revolutionized and expanded applications of liposuction, no doubt opening the door for the laser-assistance liposuction, fat reduction techniques and body contouring treatments that are so popular today.[11]

Who created Botox?

It is widely accepted that Canadian ophthalmologist Jean Carruthers and her husband, dermatologist Alastair Carruthers, pioneered the cosmetic use of Botox after presenting their incidental findings of fewer wrinkles in patients who were treated with botulinum toxin for blepharospasm. Plastic surgeon Richard Clark is also credited as the first to describe the beneficial effect of botox in smoothing wrinkles on the forehead.

Botox was first used for therapeutic purposes in 1989, when it was FDA approved for the treatment of strabismus and blepharospasm. FDA approval for its use in the treatment of cervical dystonia occurred in 2000. Botox was approved for the treatment of moderate to severe glabellar lines in 2002.[12] ■

Special thanks to Dr. Kirk Geter.

See page 24 for references.

Cosmetic Dermatology Update

From new forms of botox to microneedling and CBD-infused topicals, there's a wealth of advances in today's aesthetic dermatology.

By Sumayah Taliaferro, MD

The field of dermatology is ever changing. Each year brings innovation in the field. Here is a brief look at new advances in aesthetic dermatology.

Botulinum neurotoxin. Botulinum neurotoxin treatments are the most popular non-surgical cosmetic services in the United States and around the world. There are seven serotypes of botulinum neurotoxin (types A through G). Currently, only types A and B are used for therapeutic purposes in medicine and aesthetics.

In the persistent search to progress in the aesthetic market, newer forms of the neurotoxin are emerging. Among the novel formulas are neurotoxins in liquid form that do not require reconstitution and products with a faster onset of action or different durations of activity.

The preexisting botulinum neurotoxins:

OnabotulinumtoxinA, serotype A (Botox, Vistabel, Vistabex)

AbobotulinumtoxinA, serotype A (Dysport, Azzalure)

Incobotulinumtoxin A, serotype A (Xeomin, Bocouture)

Rimabotulinumtoxin B, serotype B (Myobloc)

New or emerging botulinum neurotoxins:

PrabotulinumtoxinA (Jeuveau, Nabota) is a botulinum toxin serotype A that is similar in structure to Botox. It was recently FDA approved for the treatment of moderate to severe glabellar rhytids in adult patients.

DaxibotulinumtoxinA (DAXI, RT002) is investigational drug designed to be longer-lasting and offering the benefit of not containing human blood- or animal-derived ingredients. It may also offer the advantage of not requiring refrigeration. It was previously studied in topical gel formulation as a potential topical botulinum neurotoxin but may have shown substandard clinical efficacy and thus was not pursued further.

Botulinum toxin E is similar in structure to botulinum toxin A and designed as a liquid. It has a faster onset of action and shorter duration of action compared to the botulinum neurotoxin A types.

Innotox, serotype A is a liquid type of botulinum neurotoxin developed in Korea.

MT10109L is a liquid botulinum neurotoxin in phase III clinical trials in the U.S. and Canada.

QM-1114 by Galderma is a liquid botulinum toxin in phase II trials.[1]

Restylane® Kysse, a new filler. There are multiple cutaneous fillers available on the market today to match the specific desire of patients and practitioners. The latest filler introduced in 2020 is Restylane® Kysse, a new filler for the lips. Supported by phase III trial results, lips injected with the product showed improved natural-looking fullness and a high level of patient satisfaction.[2]

Platelet-rich plasma. Research continues to emerge to support the use of platelet-rich plasma (PRP) in dermatology. PRP has been used to aid in repair of cells and soft tissues, especially in the recovery of orthopedic injuries. Now PRP has applications in dermatology, plastic surgery, rheumatology and other areas of medicine with growing popularity.

Results of studies showing efficacy are mixed. In dermatology, PRP is used in facial rejuvenation and often for the enhancement of treatments for hair loss. During PRP treatments, blood drawn from the patient is spun in a special centrifuge device to separate the platelet-rich plasma portion from red blood cells. The autologous platelet suspension contains growth factors and bioactive molecules that yield a stem cell like effect. Injection of the concentrate of platelet-rich plasma, full of concentrated growth factors, into the dermis stimulates targeted cell growth.

While PRP is used most often in dermatology for hair growth, facial rejuvenation and scar treatments, it may be used to treat other conditions. A recent article highlights its efficacy in functional and visual improvements in patients with scleroderma.[3]

Microneedling. Microneedling has reemerged in dermatology as a popular aesthetic treatment. It offers a non-invasive technique of improving texture and other imperfections of the skin. During the treatment, tiny microneedles

create small channels into the epidermis and dermis. The purpose of the treatment is to generate new collagen and skin tissue, rejuvenating the skin for a smoother, firmer, more toned appearance.

Microneedling is useful in the treatment of a variety of skin issues including photoaging, acne scarring, stretch marks, traumatic scars, pigmentation and wounds. Microneedling also significantly enhances delivery of topicals to the skin. Increased penetration often leads to greater efficacy of cosmeceuticals but requires careful selection to prevent hypersensitivity.

CoolSculpting®. CoolSculpting® offers one of the best options for the non-surgical treatment of stubborn unwanted adipose tissue. The device uses a proprietary cold temperature to freeze away fat bulges. Designed to only target adipose cells, it selectively causes cell death of the fatty tissue cells without damaging other structures in the body. This photothermolysis leads to permanent reduction of fat in the therapeutic area. (However, new fat cells may develop near or around the affected area if substantial weight gain occurs.)

Most dermatologists would agree that for some patients, traditional surgical liposuction is the best option for which referrals are made to plastic surgery. However, CoolSculpting® services a large population of patients who want to remove persistent unwanted fat bulges in a minimally invasive manner. It is FDA-approved for various body areas including under the chin, the abdomen, flanks, regions of the back and thighs.

A new and improved CoolSculpting® device was recently launched. Significant refinements were made on the original model that could offer enhanced efficacy and fewer side effects.

CoolTone®. The makers of CoolSculpting recently released a sister device that uses magnetic muscle stimulation to firm muscle and tone treatment areas. It is a body contouring instrument that targets muscle.

CoolTone® emits currents that permeate the skin and travel down into the muscle and stimulates muscular contractions in a manner difficult to achieve with exercise alone. Targeted treatment areas include the abdomen, buttocks and thighs.

EMSCULPT®. The creators of EMSCULPT® recognized that smooth body contouring requires not only reduction in fat, but also sharper muscle tone. The EMSCULPT® technology stimulates strong muscle contractions that are not generally attainable through the muscle contractions that occur with normal regular exercise.

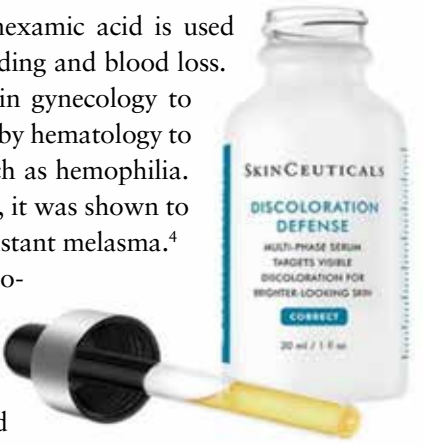
The laser energy penetrates safely through the skin to directly target layers of adipose and muscle. The body responds with remodeling of the inner structure of these layers and an increase in muscle mass.

The recommended treatments occur in sessions that are two to three days apart. The procedure requires little to no recovery time and minimal effort before and after treatments.

New Trends in Dermatologic Cosmeceutical and Prescription Products

Dermatology has a history of breakthrough discoveries from systemic treatments. Minoxidil, tacrolimus and glutathione were first more popularly used in systemic form for other indications outside of dermatology but are now commonly used in this field. Here are a few newer products that have now found important topical cutaneous applications.

Tranexamic Acid



In systemic form, tranexamic acid is used to prevent excessive bleeding and blood loss. For example, it is used in gynecology to treat heavy bleeding and by hematology to treat blood disorders such as hemophilia. Recently, in dermatology, it was shown to significantly improve resistant melasma.[4]

While efficacy is notable, potential side effects have led to cautious use orally. Side effects include an increased risk of thromboembolism, allergic reactions and changes in vision. An abundance of caution has led to the use of tranexamic acid in topical form as well for the treatment of melasma and other dyschromias with hyperpigmentation.

Bakuchiol

Bakuchiol is a plant botanical derived from seeds of the psoralea corylifolia plant (commonly known as babchi) which is indigenous to Asia and India. It is often touted as a more natural alternative to retinol because it has similar anti-aging properties and a gentler effect on the skin. It has shown efficacy in treating fine lines and also enhances radiance of the skin. Used for years in Ayurvedic medicine, this ingredient is earning a royal place in dermatology and anti-aging medicine.[5]

Probiotics in skin care

Currently, the emphasis on the overall benefits of a healthy microbiome brings a focus on skin care tailored to balancing the microbiome of the skin. One may now find several products promoting the health of the skin through their purported effect on the cutaneous microbiome.

Cysteamine

Cysteamine is now used in a topical formulation to treat hyperpigmentation. Especially helpful for skin of color, it has added to the armamentarium of treatment options for melasma, post-inflammatory hyperpigmentation, dyschromia of aging and solar lentigo. Cysteamine is used systemically in medicine in the treatment of nephropathic cystinosis.[6]

CBD-infused topicals

CBD is an abbreviation for cannabidiol, a compound found in cannabis plants. CBD is not the chemical in marijuana that causes a "high" (that's THC), rather it imparts a feeling of calm and relaxation. Its feel good effects seem to extend to the skin.

CBD oil has been discovered to have anti-inflammatory and antioxidant benefits. It may aid in reducing pain and inflammation in the skin. CBD may also reduce sebum production. These effects explain its potential use for the treatment of acne. Emerging research shows that CBD offers properties that may enhance skin radiance, slow down the visible effects of aging and possibly offer relief for symptoms of eczema and psoriasis.

More studies are needed to better inform the use of CBD in skin care. For best outcomes, experts recommend CBD isolate in topical form for the skin, as it is considered a purer form of CBD, lacking other additives and other compounds in the cannabis/hemp plant.

Clascoterone 1% cream

Winlevi clascoterone cream 1%

Breezula

Undoubtedly inspired and propelled by the efficacy of antiandrogens on the treatment of acne and hair loss, dermatologists anticipate the arrival of clascoterone. Closcoterone is a novel androgen receptor inhibitor undergoing study as a potential new treatment for acne and androgenetic alopecia. The reported possible brand names are Winlevi (for acne) and Breezula (for hair loss).[7]

Aklief

A new retinol has not been introduced in many years, so dermatologists welcomed the launch of Aklief, a novel retinoid by Galderma containing trifarotene. Recently approved by the FDA, trifarotene was found to be clinically effective in the treatment of mild to moderate acne and more tolerable than other retinoids. ■

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