

This lesson is supported by an educational grant from Union Swiss.

Helping patients manage common pregnancy-related skin conditions

INTRODUCTION

While pregnancy usually is characterized by symptoms of morning sickness, constipation and backaches, a woman's skin also goes through many noticeable changes during her pregnancy. Stretch marks probably are the most common skin change that pregnant women experience. However, a variety of other skin conditions can occur not only throughout pregnancy but postpartum as well.

It is estimated that stretch marks typically occur in up to 90% of pregnant women by the third trimester or after the 24th week of gestation.^{1,3} There are three categories of pregnancy-associated skin conditions that have been identified, including benign skin changes resulting from normal hormonal changes, exacerbation or changes in pre-existing skin diseases and pregnancy-specific dermatoses.¹ Stretch marks, hyperpigmentation and vascular changes are classified as skin conditions associated

with normal hormonal changes during pregnancy. Women with such pre-existing skin diseases as eczema, psoriasis or acne may see a worsening of symptoms throughout pregnancy.

Pregnancy dermatoses are defined as a rare group of inflammatory and pruritic skin diseases specifically related to pregnancy or immediately following delivery.¹ Many of these skin diseases that require healthcare provider referral develop in the last few weeks of pregnancy and can range from mild to severe. Although an exciting time in a woman's life, the physical changes that accompany pregnancy and the postpartum period come with many concerns and questions.

Accessibility of skin care products requires the clinician to be knowledgeable on managing common pregnancy-related skin conditions. Clinicians should be able to effectively counsel the pregnant and postpartum patient on the poten-

tial benefits, safety and proper use of nonprescription and prescription skin creams and lotions. Understanding the different types of skin conditions, mechanism for development and potential risk factors is the first step in being able to communicate with both the pregnant and postpartum patient.

PREGNANCY AND THE SKIN

Hormones play a significant role in causing the various dermatological changes observed during pregnancy or postpartum. Progesterone and estrogen are the primary hormones for maintaining pregnancy and development of the fetus. Both hormones continue to rise throughout pregnancy and appear to be the primary risk factor for many of the pregnancy-related skin abnormalities. Skin changes, especially those that are visible, can cause additional emotional stress to the patient. It is necessary to identify the different skin conditions so

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Initial release date: Aug. 1, 2011

Planned expiration date: Aug. 1, 2012

This program is accredited for 1.50 (one and one-half) hours of continuing education credit, of which 1.00 (one) hour is considered pharmacology credit.

Program Goal: To improve the clinician's ability to provide consultation on management and prevention of pregnancy-associated skin conditions.

Learning Objectives:

Upon completion of this program, the clinician should be able to:

1. Describe the most common types of skin conditions — including etiology and signs and symptoms — that are associated with pregnancy.
2. Identify those patients during pregnancy and postpartum who are eligible for self-management versus those who may require prescription treatment or referral.
3. Compare and contrast the different nonprescription products used in the treatment and prevention of skin conditions during and after pregnancy.
4. Discuss the safety of topical and oral products used in this patient population.
5. Provide patient consultation on appropriate skin care techniques and other nonpharmacological methods to care for skin during and after pregnancy.

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that appropriate and safe treatment can be initiated along with the necessary nonpharmacological measures.

Normal skin changes

Stretch marks, hyperpigmentation and hair, nail and vascular changes all occur during pregnancy as a result of normal hormonal changes. Some women may experience an increase in hair growth and thickness due to an alteration in the hair cycle. This excess in hair typically is noticeable on the scalp but also may be present on the face, chest and arms. This temporary state of hirsutism may be bothersome to some women, but they should be reassured that several months following delivery, hair cycles should return to normal with normalized hormone levels. Similar to hair, nails also may undergo changes during pregnancy, such as increased growth, brittleness and indentations. These nail changes typically resolve postpartum, but promoting good nail hygiene is essential during pregnancy. Healthcare provider referral should take place if hair and nail changes continue to occur or improvement is not seen months after delivery.

Stretch mark scarring

Stretch marks, also known as striae gravidarum, are characterized by thick or thin linear bands or streaks that may be present on the abdomen, buttocks, breasts, thighs or arms. When they first develop they may appear pink, red or purple in color. Stretch marks will never completely go away, but they will gradually fade over time. The streaks eventually will become silver, skin-toned or hypopigmented.

Stretch marks, also classified as atrophic scars, result from thinning, diminished or reorganized skin elasticity and strength.^{2,3} Although there is some conflicting evidence on the relationship, stretch marks are thought to be caused by rapid weight gain or stretching of the skin. The higher levels of estrogen during pregnancy, along with other hormones, also may cause a change to the

skin, leading to stretch marks.

A recent study by Osman et al. concluded that risk factors for the development of striae include younger maternal age during pregnancy, family history of developing striae, nonwhite race, excess weight gain during pregnancy, higher maternal body weight and carrying a larger baby.³ The study also concluded that the most common sites of striae are the abdomen and the thighs and/or breasts, in 47% and 24% of women, respectively.³

Since weight gain during pregnancy has been shown to correlate to the development of stretch marks, it is important for women to maintain a healthy diet and manage their weight gain appropriately throughout pregnancy. The American College of Obstetricians and Gynecologists recommended a weight gain of 25 lbs. to 37 lbs. for women of normal weight before pregnancy.⁴ Underweight women should gain between 28 lbs. and 40 lbs., and overweight women should gain between 15 lbs. and 25 lbs. A woman who is concerned about her diet or excess weight gain should seek referral to a nutritionist for appropriate counseling and healthy meal-planning.

While not related to hormonal changes during pregnancy, another type of scar that is part of a surgical delivery is a Cesarean section scar. Nonprescription products used in the management of all types of scars, including stretch marks, contain ingredients that can help to promote scar fading, softening and smoothing. Even with no treatment, any type of scar tissue will become softer and less red on its own.

Hyperpigmentation

Approximately 90% of pregnant women will experience hyperpigmentation of the skin.⁵ Common areas for these darker spots include the breasts and inner thighs. Scars, freckles or moles already present on the body may darken as well. The hyperpigmentation experienced during pregnancy is thought to be caused by elevated levels

of estrogen and progesterone, which stimulate melanocytes to increase production of melanin, the substance that provides color to the skin and hair.⁶ Hyperpigmentation of the face also is referred to as melasma gravidarum, chloasma or the “mask of pregnancy.” It is characterized by brown, flat, blotchy patches that may appear on the forehead, cheeks, nose, upper lip and chin, or around the eyes.

Melasma is more common and evident in women with darker skin complexions.⁵ It is estimated that up to 70% of women will experience melasma during pregnancy, with higher rates observed in Hispanic, Indian, Asian and African-American populations.^{1,5,6} The condition can be worsened by excessive sun exposure, resulting in an even darker appearance to the skin.

Pregnant women also may notice a dark line that runs from the belly button to the pubic region, which is referred to as linea nigra. This line is always there, but prior to pregnancy, it is flesh colored and cannot be seen. In some cases of melasma, symptoms may persist for months or years following a pregnancy. However, hyperpigmentation generally is a self-limiting condition; areas of darker skin gradually lighten after delivery when hormone levels return to normal.

Vascular changes

During pregnancy, the volume of blood increases by 50%, which results in more blood circulation within the body and changes to blood vessels.^{5,7,8} Normal vascular changes that may occur during pregnancy include spider veins, varicose veins and facial erythema. Increased blood circulation to the face may cause a brightening to the face or the “pregnancy glow.” This, coupled with increased secretions of facial oil glands, also provides a shiny glow to the face during pregnancy. Increased blood circulation also may cause spider veins, or spider nevi, to appear during the first and second trimesters of pregnancy. They are tiny red blood vessels

that form a web-like network on the face, neck, upper chest or arms.

Unlike spider veins, varicose veins are larger, blue-colored veins that may appear most prominently on the legs, causing them to become swollen, sore and prone to blood clots. Patients with complaints of leg pain, swelling, warmth and redness should contact their health-care provider immediately as these could be symptoms associated with deep vein thrombosis. During pregnancy, varicose veins are caused by the excess weight and pressure of the uterus, which slows down the extra blood flow circulating in the body. Risk factors for varicose veins include multiple pregnancies, excess weight gain during pregnancy, standing or sitting for long periods of time and a family history of varicose veins.^{1,5,8} Both types of blood vessel changes are normal in pregnancy and typically resolve following birth. Laser or surgical treatments are options for those patients who do not see improvement after a period of time following a pregnancy.

Pre-existing skin diseases

Women with such pre-existing skin conditions as eczema, psoriasis or acne may notice a worsening or improvement in their condition. Acne is considered both a pre-existing skin condition and a normal skin change in pregnancy. Women who have never had acne may experience pimples or irritated skin as a result of the increased oil gland secretion during pregnancy. Women with an existing acne problem may develop a worsening of their condition. There is no way to determine who may experience a worsening or improvement in an existing skin condition. However, some data have shown an opposite effect in those women with eczema and psoriasis. Some women will see an improvement in their psoriasis during pregnancy but a worsening postpartum, while others observe the opposite effect of their eczema.^{9,10} The altered levels of hormones during pregnancy appear to be the cause of exacerbating

these skin conditions. Increased pruritus and worsening of dry and inflamed skin may be experienced during a flare.

Approximately one-third to one-half of the cases of eczema, also known as atopic dermatitis, are seen during pregnancy.¹¹ Currently, there does not appear to be a link between having eczema or psoriasis and such adverse effects as birth defects or preterm delivery. However, it is necessary for clinicians to know which patients plan on conceiving and which ones are pregnant so appropriate changes could be made to current drug regimens. Severe forms of skin disease that may be associated with secondary skin infections should be treated appropriately in order to decrease any potential risks to the mother or baby.

Pregnancy-specific dermatoses

Unlike the conditions previously reviewed, pregnancy dermatoses comprise a rare group of skin diseases specifically related to pregnancy or the postpartum period. The hallmark symptom of these skin conditions is pruritus, which can be severe enough to disturb sleep and cause overall discomfort. In 2006, Ambros-Rudolph et al. developed and classified the four dermatoses of pregnancy. The dermatoses include pemphigoid gestationis, or PG; pruritic urticarial papules and plaques of pregnancy, or PUPPP; intrahepatic cholestasis of pregnancy, or ICP; and atopic eruption of pregnancy, or AEP.^{12,13}

Of the four dermatoses, PG and ICP present the most risk, including fetal prematurity and distress, as well as secondary skin infections for the mother requiring immediate diagnosis and treatment. ICP is estimated to occur in 1-out-of-150-to-1,300 pregnancies in the United States.¹² It is the most common liver condition that occurs during the third trimester of pregnancy and is characterized by jaundice and severe pruritus. PG is the least common pregnancy dermatosis and is estimated to occur in 1-out-of-50,000 pregnancies during the third trimester.¹² Symptoms include mild to severe pruritus, hives, red plaques and fluid-filled blisters found anywhere on the body.

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PUPPP and AEP are the most common of the dermatoses and are considered benign and self-limiting conditions. PUPPP may occur in 1-out-of-130-to-300 pregnancies and usually develops during the third trimester or immediately postpartum.¹² The rash is characterized by pruritic hives, papules or plaques on the abdomen within stretch marks, which may spread to the trunk and limbs. AEP may be observed in an estimated 50% of pregnancies and can be seen at any time during pregnancy but may linger postpartum.¹² The rash presents with pruritic eczema-like lesions or small red nodules most commonly on the face, neck and extremities.

Pregnant women who present with severe pruritus and an associated rash during any trimester should be referred to their healthcare provider for a thorough examination so diagnosis and treatment can take place. In mild cases, oral antihistamines or low- to moderate-potency steroid creams can provide relief of the pruritus. In severe cases in which the benefits outweigh the risks, systemic steroids or high-potency topical steroidal creams might be necessary.

SKIN CARE MANAGEMENT

The main goals of managing common pregnancy-related skin conditions are to ensure safety to the mother and baby, reduce the visibility of skin imperfections, manage associated symptoms and improve the impact that the potential scarring has on the patient within a reasonable amount of time. The choice of skin care product will depend on the specific condition. Currently, there are nonprescription products available for management of stretch marks, surgical scars and hyperpigmentation. Nonmedicated moisturizers, sunscreens and oral antihistamines also play a role in self-managing the skin changes during pregnancy. While there are numerous topical products available for women to use during and after pregnancy, it always is

TABLE 1

Selected nonprescription stretch mark and scar products¹⁶⁻²⁰

Topical medication	Selected ingredients	Indication	Directions	Use in pregnancy	Use in lactation*
Bio-Oil®	PurCellin™ oil (vitamins A and E, lavender, rosemary, calendula), sunflower and soybean oil	Indicated for scars, stretch marks, uneven skin tone, aging skin and dehydrated skin	Use twice daily	Yes	Yes
Kelo-cote® scar gel	Silicone	Helps treat, reduce, prevent and soften scarring from surgery, wounds or injury, including C-section scars	Apply once or twice daily for softening, smoothing and flattening hypertrophic or keloid scars	No	No
Maternity Solutions® stretch marks cream	Leaf extract, hyaluronic acid, vitamin E, collagen, cocoa, aloe	Helps prevent and reduce the appearance of recent stretch marks from earlier pregnancies or large weight loss	Twice daily at beginning of pregnancy and for several months after birth	Yes	No
Mederma® stretch marks therapy advanced cream formula	Cephalen (onion extract), hyaluronic acid, centella asiatica (leaf extract)	Indicated to reduce the appearance of stretch marks, reduce discoloration, improve texture and enhance softness	Use twice a day	Yes	Yes
Palmer's® cocoa butter for stretch marks	Theobroma cacao (cocoa) extract, mineral oil, collagen, elastin, vitamin E, shea butter	Helps improve the appearance of stretch marks	For use during and after pregnancy in the morning and evening	Yes	Yes
ScarAway® for C-sections	Silicone	Flattens, softens and fades scars from C-sections and other surgeries	Apply one silicone sheet to C-section scar. Should be worn for a minimum of 12 hours a day. Each sheet can be used for seven days. Do not use for more than 12 weeks.	No	Yes
Scarguard®	Hydrocortisone, silicone, vitamin E	Indicated for scar management forming after injury or surgery	Apply twice daily	Yes	No

* All products applied to the breasts should be washed off breast and nipple area prior to nursing.

important to consult a healthcare provider prior to use to ensure safety.

Stretch mark and surgical scar management

Since stretch marks are considered a type of scar, many products are approved for the management of both skin conditions, such as C-section scars and stretch marks. In general, nonprescription products approved for the management of scars are indicated to help new and existing scars resulting from surgery, injury, burns, acne and stretch marks appear softer and smoother. Common ingredients that may be found in these products include onion extract, essential oils, vitamin E and sunscreens. Indications for products with a focus on improving the appearance of stretch marks include restoring vital moisture and tone to the skin and smoothing marks to the skin. These products may include similar ingredients, such as essential oils and vitamin E, plus cocoa butter, hyaluronic acid, leaf extract, collagen and elastin.

Table 1 lists selected nonprescription products indicated for scar and stretch mark management and products that are considered safe to use during pregnancy and lactation.¹⁴⁻¹⁸ It is important to educate women who are breast-feeding that although a product may be suitable to use on the breasts to treat stretch marks, the medication should be removed or washed off prior to nursing. While there are a multitude of products available for scars and stretch marks, limited evidence exists that these remedies are effective in the treatment or prevention of these skin alterations.

Cocoa butter

Cocoa butter, also known as Theobroma cacao, is a vegetable fat extracted from the cacao bean. Cocoa butter is used as a skin-conditioning and moisturizing agent that softens and protects the skin. Another common skin-conditioning agent is shea butter, which is a natural fat extracted from the seed of the African karite tree. Cocoa or shea butter

usually is combined with vitamin E to enhance the softening and soothing effects of these natural fats.¹⁸ Cocoa butter, as with other skin-conditioning agents, is indicated to penetrate deep dry skin, help restore vital moisture, smooth marks and tone skin. Therefore, these ingredients have been widely recommended for stretch marks during and after pregnancy.

Despite its popularity, there is conflicting data on the effectiveness of these ingredients. In 2008, Osman et al. evaluated the effectiveness of cocoa butter lotion for the prevention of stretch marks in 175 women starting in their first trimester.¹⁹ Two groups were observed: one that used a placebo lotion and another that used cocoa butter lotion. Both groups used the lotions daily until delivery, and development of stretch marks on the abdomen, breasts and thighs were evaluated. The authors concluded that there was no statistically significant difference between the study and placebo groups after evaluating development and severity of stretch marks (45.1% versus 48.8%).¹⁹

In 2010, Buchanan et al. performed a similar study in which 300 women, starting from 16 weeks of pregnancy to delivery, were either given cocoa butter cream or placebo cream. Stretch marks developed in 44% of those using cocoa butter and 55% of those using placebo (P=0.09).²⁰ Conclusions were similar, finding no significant benefits for the use of cocoa butter in the prevention of stretch marks.

Despite the lack of clinical evidence as shown by these study results, the skin-conditioning agents cocoa and shea butter still are recommended and considered safe to use throughout pregnancy and postpartum. These ingredients work by increasing moisture to the skin, which provides skin with a softer appearance, improves skin elasticity, enhances hydration and limits skin irritation. All of these factors can benefit women who have dry, irritated, itchy skin associated with the various skin conditions throughout pregnancy.

Onion extract

Allium cepa, most commonly known as onion extract, has been used in the treatment of numerous medical conditions, including skin scarring.²¹ Some properties displayed by onion extract include anti-inflammatory action and inhibition of excess collagen synthesis and platelet aggregation. These proposed mechanisms of onion extract may explain its role in reducing and softening the visibility of scars. There currently are no studies available that have looked at the role of onion extract when topically applied to such atrophic scars as stretch marks. However, a limited number of studies have compared onion extract versus placebo or standard therapies, such as petrolatum, on surgical scars.

Petrolatum emollient often is used as a comparison agent when studying the benefits of scar products. According to the American Academy of Dermatology, petrolatum has been considered a standard in skin therapy by providing skin protection and maintaining skin moisture, which can be beneficial for a dry and pruritic scar.²² According to a 2006 release statement by the American Academy of Dermatology, studies have not fully substantiated the effectiveness of onion extract in the improvement of scars due to conflicting data. In addition, the AAD stated that various studies have shown that onion extract is no more effective than other nonprescription products, such as petrolatum. Although the effectiveness may be questionable, pharmacists should educate patients that no study has shown an adverse impact when using topical onion extract. Therefore, the potential benefits outweigh any risks associated with use of topical onion extract.

Essential oils

Essential oils are aromatic oils obtained by a physical process from an odorous plant material of a single botanical. Different parts of the plant can be used to obtain essential oils, including the flowers, leaves, seeds, roots, stems, bark or wood. Essential oils are the basic materials of aromatherapy and can be

utilized either by inhalation or topically. When topically applied, the essential oils enter the circulatory system by either massaging into the skin or placing the essential oils in baths, lotions or dressings.

Most products that contain essential oils use a combination of the oils to provide a synergistic effect. Essential oils have potential uses in skin care, including all types of scars, stretch marks, uneven skin tone and dehydrated and aging skin.²³ Vitamins A and E, lavender, rosemary, calendula, sunflower and soybean oil are some of the oils used in skin care products. They have multiple mechanisms, such as improving skin elasticity, texture and tone; skin-conditioning; and providing a soothing and calming effect to the skin.¹⁴ Essential oils topically used are considered safe to use throughout pregnancy and lactation but should be washed off prior to nursing.¹⁴

Unfortunately, there is limited clinical evidence on the use of essential oils in the management of stretch marks and scars. The majority of studies evaluating the use of essential oils have been in basic wound care. In 2007, Woollard et al. conducted a literature review of the current evidence on the use of lavender, chamomile, thyme and tea tree in wound healing.²⁴ In a five-subject study using dressings containing a combination of lavender and chamomile on chronic wounds, those treated with the essential oils healed more quickly than the control group. This literature review summarized the potential effects of various essential oils, including antibacterial and antifungal activity, stimulating new skin cell growth and anti-inflammatory effects.

In a small four-month study conducted by an international clinical test laboratory in 2005, 20 women between the ages of 18 and 55 years with abdominal stretch marks were asked to apply vitamins A and E, lavender, rosemary, calendula, sunflower and soybean oil twice a day.¹⁴ Half of the participants noticed an improvement in their stretch marks after four weeks. Based on the potential mechanism of the oils and their use in combina-

PATIENT CASE 1

Mrs. Waters is a 35-year-old female who is pregnant with her first child. She is in her first trimester at 12 weeks. She presents to your clinic with complaints of itchy and dry skin predominantly on her abdomen and breasts. She also claims to see the beginning of stretch marks in those areas. She is concerned about seeing stretch marks so early in her pregnancy and would like to know if there is a product that you would recommend for her stretch marks and associated symptoms.

CASE DISCUSSION

Stretch marks are a normal skin change that can take place during pregnancy. Although typically seen during the third trimester, they can appear at any time, causing the skin in those areas to be dry and itchy. The primary goal for this patient is to minimize her itchy skin, restore the skin's moisture, improve skin tone and elasticity, and provide a smoother appearance to any scarring. Such ingredients as essential oils, cocoa butter, onion extract, hyaluronic acid and vitamin E all can benefit this patient. Although there are few studies substantiating their true effectiveness, they are considered safe to use during and after pregnancy, and have shown no adverse effects. Moisturizing the skin throughout pregnancy is key, and it is best to apply a cream or lotion after bathing. Massaging or rubbing any visible stretch marks in a circular motion can help to break up scar tissue and provide a smoother appearance to the skin.

tion with other skin care ingredients, they may provide benefits to those looking for a better appearance to their scarring.

Other ingredients

Stretch mark and scar management products typically are found with multiple ingredients to provide different mechanisms of action that may benefit various types of scars. Vitamin E, aloe vera and hyaluronic acid work as hydrating agents to soften and moisturize scarred skin tissue. Leaf extract, also known as centella asiatica or gotu kola extract, is another ingredient found in scar and stretch mark lotions and creams. Potential dermatological benefits of leaf extract include strengthening and firming of the skin, increasing skin collagen and increasing blood supply to inflamed skin tissues.²¹ For these mechanisms, leaf extract commonly is used throughout pregnancy and post-delivery to minimize scar appearance due to stretch marks or surgical C-sections.

Collagen and elastin are the skin pro-

teins responsible for elasticity, tone and texture, and also are found in skin care products. These ingredients may have a potential role as a result of the diminished skin elasticity and tone that has been affected by stretch marks.

Except for vitamin E, there are few studies individually looking at these ingredients. Young et al. analyzed some of these trials to determine if there is an effective combination product to use in the prevention or treatment of stretch marks during pregnancy. One study, which compared placebo cream to a combination cream of leaf extract, vitamin E, collagen and elastin, found that less women developed stretch marks using the study medication.²⁵ Although there was no placebo for comparison, another study showed benefit in the prevention of stretch marks when using a combination of vitamin E, hyaluronic acid and elastin.²⁶

Silicone and hydrocortisone are other ingredients that may benefit thickened or pruritic scars, respectively. Silicone can aid in flattening, smoothing and

softening scars, which explains its benefits on thicker scars.

Sunscreens also are part of many skin care products and protect any type of scarring from getting darker in color, especially if present on a sun-exposed area of the body.

Clinicians should educate patients that there are many factors that can affect the development of stretch marks, and while there is inconclusive data on the benefits of these products, they can still provide adequate skin hydration, moisturizing and a softer appearance to the skin. Referral to a dermatologist should take place if the patient is looking for a quicker and more aggressive treatment to remove the scarring.

Hyperpigmentation management

Hydroquinone is the primary ingredient found in nonprescription hypopigmenting agents. These products are indicated to remove dark spots, freckles and other skin discolorations that may be caused by age, the sun, minor scars, pregnancy or contraception use. Hydroquinone, a lightening agent, is thought to interact with melanin production in the lower layers of the epidermis, resulting in a gradual fading of the darkened skin areas.⁶ Nonprescription hydroquinone contains 2% of the active ingredient, and prescription strengths are available as 3% and 4% concentrations.

Table 2 lists selected nonprescription hypopigmenting agents, and Table 3 in-

cludes prescription agents.^{6,17,27} Women should be aware that products containing hydroquinone, especially the nonprescription strengths, do not work immediately. Results may not be observed for an average of four weeks, with a range between three weeks and three months.⁶ Any hydroquinone product should be discontinued if improvement is not seen within three months.⁶

Sun exposure works against the mechanism of hydroquinone, causing increased production of melanin. Since this can exacerbate a patient's condition and cause further darkening of the skin, it is recommended that any hydroquinone product be used in conjunction with a sunscreen. The American Academy of Dermatology and the American Cancer Society recommend the use of a broad-spectrum sunscreen with an SPF of 30 and containing both UVA and UVB protection.

For patients who may not be adherent with this regimen, there are combination products available that contain both hydroquinone and such sunscreens as para-aminobenzoic acid, or PABA; octinoxate; and padimate O. Glycolic acid, an alpha hydroxy acid, is another ingredient found in hypopigmenting products. It works to increase the skin's texture, increases growth of skin cells and quickly removes hyperpigmented skin cells.²⁷

It is recommended that hydroquinone-containing products only be used on the face and very small affected areas once to twice daily. It is not meant to be used on the body or darkened areas covering a large portion of the body. While all hydroquinone-containing products have been assigned pregnancy category C by the Food and Drug Administration and are indicated for use during pregnancy, manufacturers still recommend that pregnant or lactating patients contact their healthcare providers prior to use.²⁸

Since 2006, the FDA has voiced concerns over the safety of hydroquinone and its continued marketing of the product. Until a sufficient amount of data is available to show that there is a

TABLE 2

Selected nonprescription hyperpigmentation products¹⁹

Topical medication	Selected ingredients
Ambi [®]	Hydroquinone, padimate O (sunscreen), vitamin E, alpha hydroxy acid
Alpha Hydrox [®] Spot Light targeted skin lightener	Hydroquinone, alpha hydroxy acid, vitamin E
Esoterica [®]	Hydroquinone, octyl dimethyl, para-aminobenzoic acid (PABA), benzophenone-3
Porcelana [™]	Hydroquinone, octinoxate
Palmer's [®] Skin Success eventone fade cream	Hydroquinone, octyl salicylate, vitamin E, alpha hydroxy acid

TABLE 3

Selected hydroquinone prescription products

Brand/product	Ingredients
Melquin-3 [®] topical solution	Hydroquinone 3%
Lustra [®] topical cream Melquin [®] HP cream Claripel [®] topical cream	Hydroquinone 4%
Lustra-Ultra [®]	Hydroquinone 4%, retinol (sunscreen) 0.3%
Lustra-AF [®]	Hydroquinone 4%, glycolic acid (AHA), avobenzone (sunscreen)

higher benefit-to-risk ratio when using the products, it is recommended by the agency to advise against the use in pregnant patients for self-management of hyperpigmentation.²⁸ For patients who are prescribed hydroquinone products, counseling should include information about such potential side effects as skin irritation, contact dermatitis, acne and hypopigmentation in the area of treatment. Patients who show no improvement with the use of nonprescription-strength hydroquinone postpartum may be candidates for prescription-strength hydroquinone, topical tretinoin, topical corticosteroids or laser treatments.¹

Management of pre-existing skin conditions

Management of worsening pre-existing skin diseases, such as acne, eczema and psoriasis, in pregnancy always should begin with proper skin hygiene. Consultation for those with acne should include eating healthy foods, cleansing the face twice a day to minimize the excess oil, washing with an oil-free mild soap and following with an application of an oil-free moisturizer. In order to avoid facial scarring, it is important not to pick at the pimples or excessively rub the skin. Topical benzoyl peroxide and salicylic acid, both pregnancy category C, are available in nonprescription-strength

topical formulations. However, the American Pregnancy Association recommends consulting a healthcare provider prior to using medicated acne products to weigh the risks against the benefits.^{29,30}

Such prescription medications as topical retinoids, oral tetracycline and oral isotretinoin must be avoided during pregnancy.^{30,31} Women should notify their healthcare providers if they currently are taking these medications and trying to become pregnant. Skin care techniques for women who experience flares of eczema or psoriasis include avoiding hot water when bathing; taking short, lukewarm baths or showers; applying a non-fragrant moisturizer several times a day, including after bathing; avoiding products that exfoliate the skin; and applying a cool compress to itchy areas.⁹ These skin care recommendations also can benefit women who experience pruritus associated with pregnancy dermatoses.

When nonpharmacological measures do not provide symptomatic improvement, low to moderate topical corticosteroid potency may be considered first-line treatment for mild to moderate eczema in pregnancy.⁹ High-potency topical corticosteroids and systemic steroids generally are avoided during pregnancy. When topical steroids fail to treat a flare-up of a pre-existing skin condition in pregnancy, ultraviolet light therapy is considered the safest second-line course of treatment. Other treatments approved for eczema, such as the calcineurin inhibitors tacrolimus and pimecrolimus, have not been fully evaluated in pregnancy and therefore should be avoided in this population.⁹

Treatment for uncontrolled psoriasis during pregnancy should focus on the use of ultraviolet light therapy and limited amounts of low-potency topical steroids. Since there is no clear evidence of the risk on a fetus, other topical treatments should be avoided during pregnancy and lactation unless the benefits outweigh the risks.³¹ The specific pregnancy category of a drug always should be evaluated when determining a drug

PATIENT CASE 2

Mrs. James is a 36-year-old African-American female who has been a patient at your clinic for several years. She is three months postpartum with her second child and not currently breast-feeding. She presents to your clinic with complaints of “darkened areas on her face that will not fade.” She explains that during her second pregnancy, she noticed darkened blotchy spots on her face, specifically on her cheeks and nose. She did not experience this during her first pregnancy and was hoping the spots would fade after she gave birth. She would like to know if there are any products, besides concealers, that would remove or fade these spots.

CASE DISCUSSION

Mrs. James has experienced pregnancy-induced hyperpigmentation, which is a common skin change during pregnancy due to hormonal changes. In many cases, these darkened or blotchy areas will fade. However, the condition may continue to persist after giving birth. Hydroquinone is the primary ingredient found in nonprescription hypopigmenting agents. These products are indicated to remove dark spots, freckles and other skin discolorations that may be caused by age, the sun, minor scars, pregnancy or contraception use.

Mrs. James could begin with a nonprescription hydroquinone product available as a 2% formulation. She should be counseled that results may not be observed for approximately a month, and she should discontinue the product and return to the clinic in three months if improvement is not seen. The product should be used only on the face to treat the affected areas, and the patient may observe some skin irritation from the medication. Since sun exposure can further darken the skin, it is important for Mrs. James to either apply a separate broad-spectrum sunscreen to her face when outdoors or choose a product that has a combination of hydroquinone and various sunscreens.

Recommending prescription-strength hydroquinone, which is available as 3% and 4% formulations or referral to a dermatologist for more aggressive treatments, would be the next step for this patient if the nonprescription products did not remove or lighten the affected areas.

TABLE 4

FDA pregnancy category X medications^{*31,32}

Drug	Indication
Acitretin	Psoriasis
Methotrexate	Psoriasis
Tazarotene	Psoriasis
Isotretinoin	Acne

* FDA definition of category X drugs: Studies in animals or human beings have demonstrated fetal abnormalities, or there is evidence of fetal risk based on human experience or both, and the risk of the use of the drug in pregnant women clearly outweighs any possible benefit. The drug is contraindicated in women who are or may become pregnant.

PRACTICE POINTS

1. The three categories of pregnancy-associated skin conditions include benign skin changes, changes in pre-existing skin disease and pregnancy-specific dermatoses.
2. Other than stretch marks and surgical scarring, which will only fade, other pregnancy-related skin conditions typically resolve postpartum.
3. Essential oils, onion extract, cocoa butter, vitamin E, hyaluronic acid, sunscreens and hydroquinone are just a few of the ingredients found in non-prescription skin care products.
4. Appropriate skin care techniques always should be followed throughout pregnancy to minimize potential skin changes.
5. Women who are pregnant or nursing postpartum always should consult with their healthcare provider to ensure the safety of using products throughout pregnancy or during lactation.

regimen for a patient trying to conceive or who already is pregnant. Table 4 lists the dermatological pregnancy category X medications that must be avoided during pregnancy or if planning to become pregnant.³¹ While medication use in pregnancy always should be discussed with a healthcare provider, an oral antihistamine or nonprescription-strength steroidal cream may be beneficial if pruritus becomes a significant

issue for a patient.

CONCLUSION

Clinicians should reassure patients that — with the exception of stretch marks or C-section scars, which will only fade — the majority of skin changes that occur during pregnancy will resolve themselves postpartum. However, if symptoms persist or worsen, the patient should seek medical attention.

Unfortunately, there is no way to know who will develop pregnancy-related skin diseases. Focusing on nonpharmacological measures is the first step in the prevention or management of these various skin conditions. When lifestyle changes fail to help a patient manage their symptoms, the clinician should consider topical or oral nonprescription products as a first-line treatment prior to using prescription medications.

1 Tunzi M and Gray GR. Common Skin Conditions During Pregnancy. *American Family Physician*. 2007; 75:211-8. 2 Chang AL et al. Risk factors associated with striae gravidarum. *Journal of the American Academy of Dermatology*. 2004; 51:881-5. 3 Osman H et al. Risk Factors for the development of striae gravidarum. *American Journal of Obstetrics & Gynecology*. 2007 January; 196(1):62.e1-62.e5. 4 American Pregnancy Association. About Pregnancy Weight Gain. Available at www.americanpregnancy.org. Accessed March 2010. 5 American College of Obstetricians and Gynecologists. Skin Conditions During Pregnancy education pamphlet. Available at www.acog.org. Accessed March 2010. 6 Pray WS. Skin Hyperpigmentation. In *Nonprescription Product Therapeutics*. Lippincott: Philadelphia, PA. Second edition. Chapter 37. 7 Merck Manual. Physical Changes: Normal Pregnancy. Available at www.merck.com. Accessed March 2010. 8 American Pregnancy Association. Skin Changes During Pregnancy. Available at www.americanpregnancy.org. Accessed March 2010. 9 American Academy of Dermatology. EczemaNet. Treating Eczema During Pregnancy. Available at www.skincarephysicians.com. Accessed March 2010. 10 American Academy of Dermatology. PsoriasisNet. Psoriasis Triggers. Available at www.skincarephysicians.com. Accessed March 2010. 11 Dermatitis Facts. Atopic Dermatitis (Eczema) in Pregnancy. Available at www.dermatitisfacts.com. Accessed March 2010. 12 Roth MM. Specific Pregnancy Dermatoses. *Dermatology Nursing*. 2009;21(2):70-74. 13 Ambros-Rudolph CM et al. The specific dermatoses of pregnancy revisited and reclassified: Results of a retrospective two-center study of 505 pregnant patients. *JAAD*. March 2006; Volume 54(3):395-404. 14 Bio-Oil®. Available at <http://www.bio-oil.info/en/uses.html>. Accessed March 2010. 15 Mederma®. Merz Pharmaceuticals, LLC. Greensboro, NC. Available at www.mederma.com. Accessed March 2010. 16 Scar Zone®. CCA Industries. East Rutherford, NJ. 2008. Available at www.scarzone.com. Accessed March 2010. 17 Drugstore.com Online Pharmacy. 1999-2009. Drugstore.com. Available at www.drugstore.com. Accessed March 2010. 18 Plamer's. E.T. Browne Drug Co. Englewood Cliffs, NJ. Available at www.etbrowne.com. Accessed March 2010. 19 Osman H et al. Cocoa butter lotion for prevention of striae gravidarum: a double-blind, randomized and placebo-controlled trial. *BJOG*. 2008 Aug; 115(9):1138-42. 20 Buchanan K et al. Prevention of striae gravidarum with cocoa butter cream. *International Journal of Gynecology & Obstetrics*. 2010 Jan;108(1):65-8. 21 World Health Organization. Monographs on selected medicinal plants. Volume 1: 1999: 1-295. Available at <http://whqlibdoc.who.int/publications/1999/9241545178.pdf>. Accessed March 2010. 22 American Academy of Dermatology. Release Statement: Fading From Sight: New Advances To Minimize Surgical Scars. March 3, 2006. Available at www.aad.org. Accessed March 2010. 23 National Cancer Institute. Aromatherapy and Essential Oils Questions and Answers. Last modified May 2008. Available at www.cancer.gov. Accessed March 2010. 24 Woollard AC, Tatham KC, Barker. The influence of essential oils on the process of wound healing: a review of the current evidence. *Journal of Wound Care*. 2007;16(6):255-257. 25 Young G and Jewell D. Creams for preventing stretch marks in pregnancy. *Cochrane Database of Systemic Reviews*. 1996, Issue 1. 26 Mallol J et al. Prophylaxis of striae gravidarum with a topical formulation. A double-blind trial. *International Journal of Cosmetic Science*. 1991 Feb; 13(1):51-7. 27 Gupta AK and Ryder JE. Lustra®, Lustra-AF® and Alustra™. *Skin Therapy Letter*. Volume 8. Number 5. June 2003. Available at www.skintherapyletter.com. Accessed March 2010. 28 Food and Drug Administration. Skin Bleaching Drug Products For Over-the-Counter Human Use; Proposed Rule. *Federal Register*. Aug. 29, 2006. Volume 71, Number 167. Pages 51146-51155. 29 American Pregnancy Association. Acne Treatment During Pregnancy. Available at www.americanpregnancy.org. Accessed March 2010. 30 American Academy of Dermatology. AcneNet. Acne Medications Not for Use During Pregnancy. Available at www.skincarephysicians.com. Accessed March 2010. 31 National Psoriasis Foundation. About Psoriasis: Conception and Pregnancy. Available at www.psoriasis.org. Accessed March 2010.

Helping patients manage common pregnancy-related skin conditions

Learning Assessment

Successful completion of “Helping patients manage common pregnancy-related skin conditions” is accredited for 1.5 (one and one-half) hours of continuing education credit, of which 1.00 (one) hour is considered pharmacology credit. To obtain credit, answer the following questions and complete the evaluation online at RetailClinician.com.

- 1. Which of the following can be classified as a normal skin change in pregnancy?**
 - a. Stretch marks
 - b. Acne
 - c. Hyperpigmentation
 - d. A and C only
 - e. All of the above
- 2. Studies have shown which of the following factors to have a positive correlation with stretch marks?**
 - a. Older maternal age during pregnancy
 - b. Family history
 - c. Caucasian race
 - d. Carrying a small baby
- 3. Melasma is more noticeable in women with lighter skin complexions.**
 - a. True
 - b. False
- 4. Which is the hallmark symptom of all pregnancy-specific dermatoses?**
 - a. Skin inflammation
 - b. Papules
 - c. Hives
 - d. Pruritus
- 5. Which of the following pregnancy-specific dermatoses is considered benign and self-limiting?**
 - a. PUPPP
 - b. PG
 - c. AEP
 - d. A and C only
- 6. Nonprescription hydroquinone-containing products should not be used for longer than ___ month(s).**
 - a. One
 - b. Two
 - c. Three
 - d. Four
- 7. Which of the following ingredients is indicated to flatten and smooth thicker scars, such as C-section scars?**
 - a. Cocoa butter
 - b. Silicone
 - c. Hyaluronic acid
 - d. Leaf extract
- 8. Potential mechanisms of leaf extract, or gotu kola, in stretch mark products include which of the following?**
 - a. Anti-pruritic
 - b. Increase skin collagen
 - c. Improve skin elasticity
 - d. Skin conditioning
- 9. Which of the following is considered first-line treatment if pharmacological measures are necessary to manage flares of eczema in a pregnant patient?**
 - a. UV light therapy
 - b. Oral systemic steroids
 - c. Calcineurin inhibitors
 - d. Low-moderate potency topical steroids
- 10. All of the following medications are classified as pregnancy category X in the management of psoriasis EXCEPT:**
 - a. Oral methotrexate
 - b. Topical tazarotene
 - c. Topical low-potency steroids
 - d. Oral acitretin