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July 2020

Adherence

Improving health outcomes

&

Urticaria

A pruritic skin condition

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editorial

over the great pause

Tracy Fenton

Ann Giles

The great COVID pause has now affected the whole world. The pandemic interrupted familiar everyday life in NZ where we are now returning to a newer version of normal life. We can take the opportunity of this pause to learn and reflect on what is important to us along with supporting our colleagues who remain at the frontline.

The July 2020 issue of 2m^2 Total Cover concentrates on skin conditions starting with either the letters 'U or V' with two professional development topics, and an interesting nursing profile.

Save the date for the 15th annual NZDNS conference on 19 & 20 August, 2021 in Queenstown.

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URTICARIA
A PRURITIC SKIN CONDITION

Tracy Fenton

Urticaria is characterized by either weal's (hives) or angioedema (swellings) or both weals and angioedema in 40 % of people (Oakley, 2015). In China, cutaneous lesions thought to be urticaria have been recognized since about 1000 B.C. Hippocrates (460-377 B.C.) described pruritic lesions caused by nettles and mosquitoes termed *knidosis*, which is derived from the Greek word for nettle (*knide*) (Freedberg et al., 2003). The name urticaria is derived from the common European stinging nettle *Urtica dioica* and dates from the 18th century when Cullen and Batemen likened the stinging and burning to that of a nettle sting (Griffiths et al., 2016).

Epidemiology

Urticaria is a common disorder with a prevalence of approximately 20% in the general population (Asero, 2020). One in five children or adults has an episode of acute urticaria during their lifetime. It is more common in people with atopy, but it affects all races and both sexes (Oakley, 2015). However, it appears to be more common among adults, with women affected more than men. The average age of patients suggests that the condition typically begins in the third to fifth decade of life (Boonpiyathad et al., 2017; Griffiths et al., 2016).

Classification of urticaria

Urticaria is commonly categorized by its chronicity, (Asero, 2020):

Acute urticaria – urticaria has been present for less than six weeks

Chronic urticaria (CU) – urticaria is recurrent, with signs and symptoms recurring most days of the week for six weeks or longer. CU may be spontaneous or inducible. Both types may co-exist. Inducible urticaria includes (Oakley, 2015):

- Symptomatic dermographism
- Cold urticaria
- Cholinergic urticaria
- Contact urticaria
- Delayed pressure urticaria
- Solar urticaria
- Heat urticaria
- Vibratory urticaria
- Aquagenic urticaria

Terminology

Anaphylaxis-a severe form of allergic reaction involving breathing difficulties
Anticholinergic-medications that block the action of acetycholine (a neurotransmitter that transfers signals between cells to affect how your body functions)
Asymptomatic-no signs or symptoms
Atopy-genetic tendency to develop allergic diseases such as allergic rhinitis, asthma and atopic eczema
Aquagenic urticaria-urticaria develops after skin comes into contact with water
Basophils-a type of white blood cell
Cholinergic-agents that mimic the action of acetycholine
Dermographism-welts appear when the skin is scratched
Mast cells-a migrant cell of connective tissue that contains many granules rich in histamine and heparin
Pruritic-itchy

Prognosis

Acute urticaria patients usually develop self-remission within 3 weeks however, approximately 20% of patients with acute urticaria progress to develop chronic conditions. The duration of chronic urticaria is typically 1-5 years but may last longer than 5 years in about 14% of patients (Boonpiyathad et al., 2017). Patients may experience repeated episodes throughout their lives (Schaefer, 2017).

Etiology and pathogenesis

Urticaria and angioedema have similar underlying pathophysiologic mechanisms: histamine and other mediators released from mast cells and basophils (Schaefer, 2017). The mediators activate sensory nerves and cause dilation of blood vessels and leakage of fluid into surrounding tissues (Oakley, 2015). If the release occurs in the dermis it results in urticaria, whereas if the release occurs in the deeper dermis and subcutaneous tissues it results in angioedema.

Many factors may be responsible for the etiology of the disease, although no specific etiology can be identified in many patients, often encountered factors include (Kayiran & Akdeniz, 2019):

- Medications
- Foods
- Respiratory allergens
- Infections
- Contact urticaria
- Insect bites
- Psychogenic factors
- Systemic diseases
- Physical factors
- Hereditary
- Idiopathic urticaria

Acute urticaria is more likely to have an identifiable etiology compared with chronic urticaria (Asero, 2020). Acute urticaria can be induced by the following factors but the cause is not always identified (Oakley, 2015):

- Acute viral infection
- Acute bacterial infection
- Food allergy (usually milk, egg, peanut, shellfish)
- Drug allergy (often an antibiotic)
- Drug pseudoallergy (aspirin, nonselective nonsteroidal anti-inflammatory medications, opiates, radiocontrast media; these cause urticaria without immune activation)
- Vaccination
- Bee or wasp stings
- Widespread reaction following localised contact urticaria – i.e. rubber allergy

Diagnosis and differential diagnosis

The diagnosis of urticaria is usually clinical. A good history and physical examination help characterize the lesions and identify the cause (Boonpiyathad et al., 2017), (see Figure 1).

History elements include (Schaefer, 2017):

- Onset and timing
- Location and severity
- Environmental triggers
- Medication and supplement use
- Allergies and infections
- Travel history
- Family history of urticaria and angioedema

Urticaria may be confused with a variety of other dermatologic diseases that are similar in appearance and are pruritic or itchy such as:

- Atopic eczema
- Maculopapular drug eruptions
- Contact dermatitis
- Insect bites
- Erythema multiformé
- Pityriasis rosea
- Urticarial vasculitis

Usually an experienced clinician can distinguish urticaria from its mimickers owing to its distinctive appearance, intensely pruritic nature and complete blanching with pressure (Wong, 2018).

Acute urticaria and angioedema should be differentiated from anaphylaxis. Urticaria/angioedema associated with signs and symptoms in organs other than the skin, such as pulmonary (wheezing & cough), gastrointestinal system (vomiting and diarrhoea), nervous system

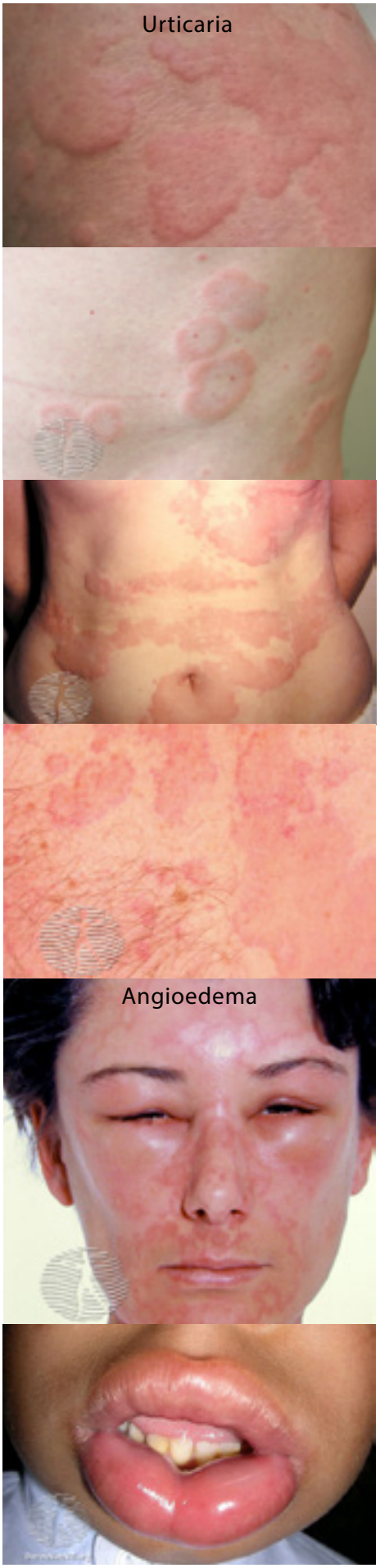

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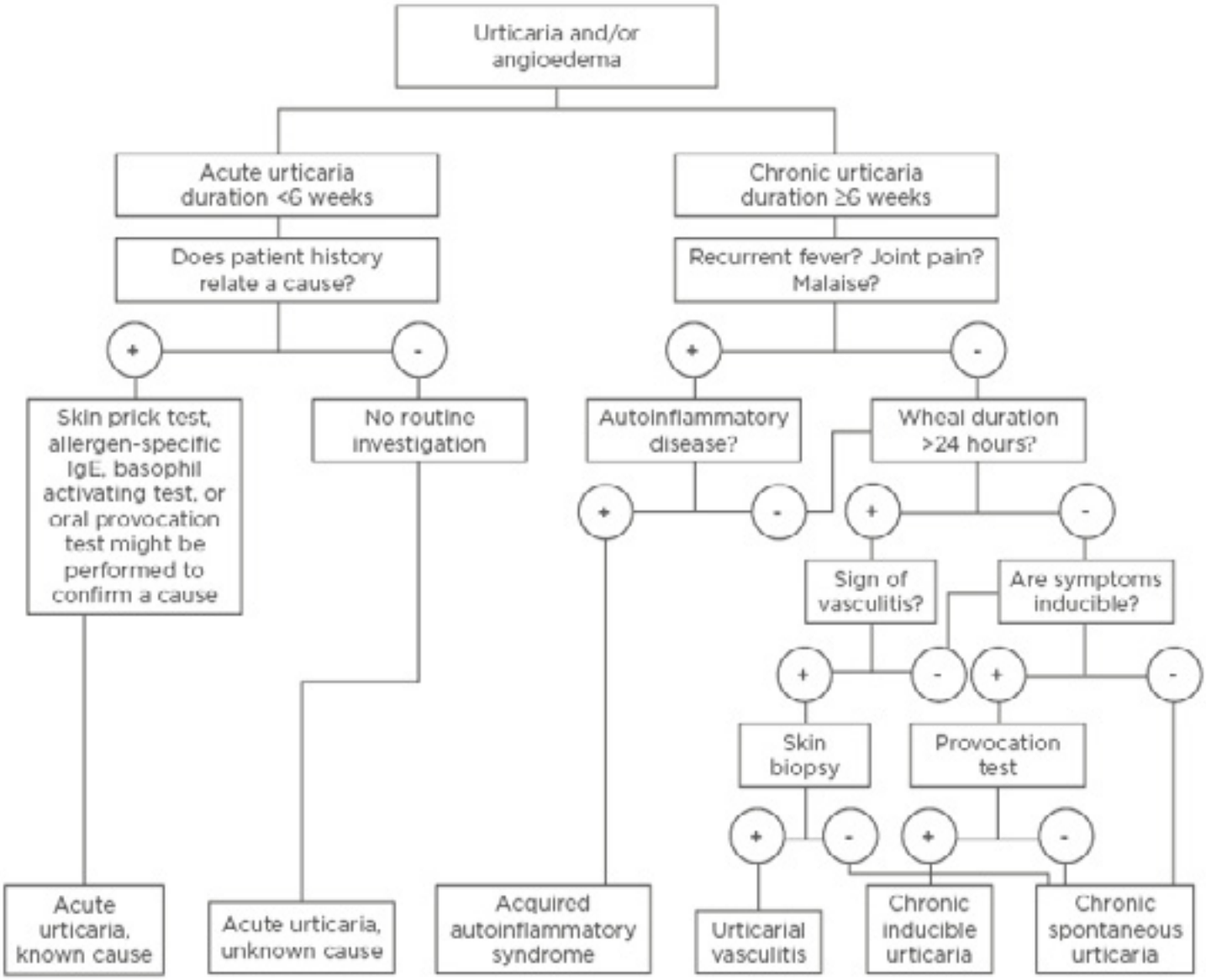
FIGURE 1. Algorithm for diagnosis and investigation of subtypes of urticaria



(dizziness and loss of consciousness) or cardiac symptoms (changes in blood pressure or heart rate) can occur in patients with anaphylaxis (Craig et al., 2014).

Clinical manifestation and presentation

There are several types of urticaria. (Oakley, 2015). Urticaria can affect any site of the body and tends to be distributed widely. In chronic inducible urticaria, weals appear about 5 minutes after the stimulus and last a few minutes or up to one hour.

A weal (or wheal) is a superficial skin-coloured or pale skin swelling, usually surrounded by erythema (redness) that lasts anything from a few minutes to 24 hours. They are usually very itchy and may have a burning sensation (Oakley, 2015).

Angioedema is deeper swelling within the skin or mucous membranes and can be skin-coloured or red. It resolves with 72 hours. Angioedema may be itchy or painful but is often asymptomatic (Oakley, 2015). It is often localized and commonly affects the face (especially eyelids and perioral sites), hands, feet and genitalia. It may involve the tongue, uvula, soft palate or larynx.

Treatment and management

The treatment of urticaria is primarily symptomatic and involves largely the use of second-generation H1 antihistamines at diagnosis (Hon et al., 2019). In new-onset urticaria (with or without angioedema) the treatment should focus on the short-term relief of pruritus and angioedema (Asero, 2020). The pathobiologic areas at which

the treatment of urticaria and angioedema are directed include the initiating stimulus, effector cells and their inflammatory mediators, and receptor sites on target tissues (Freedberg et al., 2003). In addition to antihistamines, the cause of urticaria (if known) should be eliminated and physical triggers for inducible urticaria should be minimised (Oakley, 2015). This is the ideal treatment for urticaria/angioedema if possible (Freedberg et al., 2003).

The newer, second generation H1 antihistamines are recommended as first-line therapy by published guidelines from both allergy and dermatology expert panels (Asero, 2020). These drugs are minimally sedating, are essentially free of the anticholinergic effects that can complicate first-generation and have few significant drug-drug interactions (Asero, 2020). Once CU is controlled with antihistamines alone a 'step-down' in treatment is recommended. The medication should be withdrawn periodically to identify spontaneous remission of the disease. CU should be treated until spontaneous remission occurs (Hon et al, 2019).

Systemic corticosteroids probably act by suppressing various inflammatory mechanisms in urticaria (Kayiran & Akdeniz, 2019) however, they are not first line treatment for urticaria and have an extensive list of adverse effects (Hon et al., 2019). They can be effective in acute urticaria but are not suitable for long-term use (Wong, 2018). Significant angioedema or symptoms persisting for more than a few days that cannot be controlled by antihistamines may be an indication for a short course of systemic corticosteroids (Kayiran & Akdeniz, 2019).

In patients with urticaria resistant to standard treatment omalizumab (Xolair) has been used with effect (Wong, 2018), although there are no studies directly comparing omalizumab with other treatments for resistant chronic urticaria (Kayiran & Akdeniz, 2019). It is a DNA-derived humanized monoclonal antibody that selectively binds to IgE and inhibits binding to IgE receptors on the surface of mast cells and basophils (Wong, 2018). Omalizumab is administered via a subcutaneous injection for 6 months (Kayiran & Akdeniz, 2019).

Urticaria is a common skin condition and can be diagnosed in the primary care setting. The diagnosis is typically based on the patient's history and performing a physical examination. However, the cause of urticaria is difficult to determine (Boonpiyathad et al., 2017) and it is a challenging disease for both the patient and the physician (Kayiran & Akdeniz, 2019).

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Clinical Nurse Specialist · Dermatology and Infectious Diseases

Recurrent Cellulitis Clinic

Kusum Narayan Counties Manukau District Health Board · Auckland · New Zealand

Why did you choose nursing as a career and when?

The desire to help people and assist them achieve better health outcomes was the key reason for me choosing nursing as a career. While good health affects human lives positively, at the same time ill-health or disease has negative impacts. I view nursing as a very important role. We are in a unique position to assist people maintain a balance between being healthy, disease prevention and assisting those who have been affected by disease(s) reach their optimum health.

Where did you do your nursing training and post graduate study?

I did my nursing training at Fiji School of Nursing and graduated with a Diploma in Nursing in 1993. I migrated to New Zealand in 1998 and have been employed at Counties Manukau District Health Board (CMDHB) in various roles. My nursing background covers general and acute medicine with gastroenterology and infectious diseases as sub-specialities. I completed the post-graduate certificate in Adult Nursing from Massey University and then completed a post-graduate Diploma in Nursing and Masters in Nursing from Auckland University.

What nursing work and experiences led you to working in the Dermatology/Infectious Diseases Services?

All the experiences I have gained in acute and general nursing can be applied to my current role, especially building a positive rapport with patients and their whanau. I did not have any particular dermatology experience but an infectious diseases sub-speciality background certainly helps.

What is a typical day in your work life like including the most important skills and abilities required?

Triaging patients and booking them into the recurrent cellulitis clinic is an essential part of this role. It also includes reviewing patients' clinical notes, documentation of clinical notes, reviewing laboratory results, liaising with the consultants (SMO) and other primary care team members such as the GP and practice nurse. Some patients may require follow-up in the community and are visited at home or followed up with phone calls. Being organised, having good communication and problem-solving skills are essential.

How does your role fit in with the nursing and medical team?

I work closely with the Infection Diseases and Dermatology SMO. The recurrent cellulitis nurse clinic which I run is supervised by an Infection Diseases physician.

Although I am the only CNS currently in this role, I collaborate with other clinical nurse specialists in various services such as Diabetes and Rheumatology.

What kinds of nursing decisions do you have to make and who assists you when making difficult decisions with patients and families?

Reaching a correct diagnosis, ruling out differential diagnoses and understanding the cause of the patient's problems can be tricky sometimes as most patients who attend the Recurrent Cellulitis Clinic have multiple comorbidities. Since this clinic is supervised by the SMO, I always have an opportunity

to discuss each patient with my supervisor and develop an individualised treatment plan. Some of the complex dermatology patients with multiple admissions who require community follow-up, I seek advice from the multi-disciplinary team members, such as the complex case managers and the Fanau Ola case managers who are specialised in delivering culturally competent care to Pacific Island patients at CMDHB.

What abilities or personal qualities do you believe contribute most to success in your job?

A willingness to learn, seek support and advice where and when required and being persistent when dealing with difficult situations certainly helps.

What are the most rewarding aspects or important personal satisfactions of your job?

Being able to make a difference to the patients' health and witnessing their positive health outcomes and improvements is quite rewarding and reassuring.

Can you relate a patient related story to illustrate the uniqueness and importance of your role?

I remember in my first few months of the job I was referred a complex dermatology patient for community follow up. He was a 19 years old Polynesian man who had multiple admissions for bilateral leg eczema. He was unemployed, non-adherent to topical corticosteroids and was also impacted by socioeconomic disparity.

I followed him up several times as an inpatient and then visited him at home with one of the Fanau Ola case managers. Utilising a multi-disciplinary approach to assist him manage his condition certainly helped. A range of approaches were used such as involving a social worker, Fanau Ola case manager, attending family meetings, liaising with the primary care team (GP and practice nurse), involving the patient's mother in his treatment plan, community pharmacy, addressing unemployment issues, assisting with transport, repeated education sessions and monitoring medication adherence eventually ensured his recovery and prevented further readmissions.

What part of your job do you find most challenging?

Extremely complex patients with multiple health and psycho-social issues are quite challenging. Additionally, being the only CNS and the first one to establish this role also presents with various challenges.

In your role, how do you educate patients/families about the importance of skin care?

During patient's initial assessment a comprehensive history is obtained with localised physical examination. This aids in diagnosis and identifies health concerns/problems.

Once the main problems have been identified, patient/ family members are given explanation about the problem, treatment is discussed, questions are answered and written information in form of a clinic letter is provided to the patient, explaining the diagnosis and treatment plan.

In addition to this, some patients may require follow up phone calls or home visits to ensure they are following their treatment plan and if they have any further concerns then this can be addressed.

What nursing preparation, educational or other work would you recommend for someone wanting to become a nurse in your specialties?

Having experience in dermatology and infectious diseases nursing would be an advantage but not essential. Certainly, have a genuine interest in your role/patients and be prepared to learn and ask questions. A true desire to assist your patients achieve their health goals would ensure success.

If you could change one thing in your role, what would it be?

I would certainly welcome another CNS as a colleague to share ideas, discuss cases and share care. It is not only challenging but sometimes can be isolating if you are the only and first person in your role.

Kusum Narayan is a Clinical Nurse Specialist Dermatology and Infectious Diseases as CMDHB, Auckland, New Zealand

ADHERENCE

IMPROVING HEALTH OUTCOMES

Ann Giles

Vexing Question

Why would a person visit their doctor for a skin condition to be diagnosed, have treatment options including a prescription offered to them, then not collect the cream from the pharmacy or adhere to the treatment recommendations?

Very difficult answer

Unfortunately, the answer to the question of adherence to medication whether topical or oral is not simple. Studied since 1975 without being able to reliably predict or improve adherence rates, nonadherence is a dynamic, complicated, multifaceted, continuous process with around 200 individual factors (Fenerty et al., 2012; Vermerie et al., 2001). There is no clear relationship between adherence and race, sex, educational experience, intelligence, marital status, occupational status, income and ethnic or cultural background (Atreja et al., 2005). Evidence shows that nonadherence has a negative effect with poor outcomes for patients and for the healthcare system resulting in possible avoidable admissions to hospital, additional health costs, disease progression or life-threatening risks including increased mortality (Amir et al., 2019; Chren, 2002; Sabaté, 2003).

Previous terminology for adherence such as 'non-compliant', reflected a paternalistic view. It has its roots in public health campaigns such as those for scarlet fever from the 19th Century, where health officers were to be obeyed and rules were to be complied with. Words such as control, obedient, cooperative, submissive and willing come to mind; that patients should do what they are told and that failing to do so differs from what is expected (Chren, 2002). The term 'adherence' is now preferred because it suggests patient-orientated collaborative involvement with health care professionals in which they work together to plan and implement treatments. The need for such cooperation has been emphasised more recently by the suggestion that 'concordance' should be reached when the patient is being seen by a health care provider; a mutual understanding and agreement about reasonable and realistic treatment that the patient is able to carry out thereby increasing or improving adherence (Hodari et al, 2006; Sabaté, 2003; Storm et al., 2008). The World Health Organisation (WHO) defines adherence as 'the extent to which a person's behaviours-taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider' (Sabaté, 2003, pg. 17).

Thousands of research articles have been published on the worldwide problem of adherence in the past few decades, mostly related to oral medications (Martin et al., 2005). An increasing number have addressed adherence in dermatology (Serup et al., 2006). While this brief article will discuss general factors related to and solutions towards improving adherence, literature related to adherence in dermatology and more specifically adherence to topical medication have been selected. This area is of particular interest because of involvement in nursing consultations with patients using topical medication in a dermatology outpatient clinic.

Adherence for patients with chronic long term conditions averages around 50% in developed countries and even lower in developing countries (Sabaté, 2003). Since skin diseases are more visible and symptomatic with topical medications having few systemic side effects, it could be assumed that adherence to topical treatments is greater. However, adherence to topical dermatological medication may be as poor as 32%-61% related to different skin diseases and about one third of patients never redeem their prescriptions when they leave the dermatology clinic (Storm et al., 2008a). Managing a chronic disease requiring ongoing effort decreases adherence with increasing gaps in applying topical medications over time (Serup et al., 2006; Tan et al., 2012). Patients may feel creams interfere with daily living, involve complicated regimes with ambiguous instructions for use therefore are inconvenient or time consuming, messy, smelly, irritating, burning, non-aesthetic and expensive along with a fear of side-effects (Gupta et al., 2009; Kettis-lindblad et al., 2006; Tan et al., 2012). Other factors that affect adherence include patient's physical capability to apply a topical medication, cultural variations, health literacy, patient attitudes and mental health. Reasons can also be categorised as intentional when patients are aware of not following a treatment plan or have no motivation to adhere to it, and unintentional due to problems of ability to follow a treatment plan including forgetfulness or lack of correct information (Chren, 2002; Serup et al., 2006; Svendsen et al., 2019). Most important is the interpersonal relationship and clear effective communication between the health care provider and the patient. Central to this is giving the patient the opportunity to tell their unique story and for it to be heard (Buchanan, 2016; Martin et al., 2005).

Ali at al., (2007 pg. 913) have reproduced this interesting story published in 1997 by Shelley and Shelly in an article in Cutis a peer-reviewed clinical journal for the dermatologist, allergist, and general practitioner. It is an excellent starting point to understand the complexity of adherence.

In the mid-1990s, dermatologists were amazed by the effectiveness of a new product for psoriasis, zinc pyrithione spray, sold under the proprietary name "Skin-Cap" (Cheminova Internacional SA, Madrid, Spain). Shelley and Shelley reported that "No longer do the patients need steroids inuncted, ingested or injected, and no more methotrexate or PUVA visits. It seems unbelievable that a product not even requiring a prescription can be so effective. Last week one of our patients jumped up when we came in the room to exclaim, "It's a miracle," as she showed us the spray can. Her psoriasis of the scalp was now gone. It had taken just four days".

Then the presence of clobetasol propionate was detected in the cans. "It can't be just the clobetasol," dermatologists thought. "I've been prescribing that for years and it never worked as well as Skin-Cap." Some thought the efficacy of Skin-Cap was due to a synergy with the zinc pyrithione, but zinc pyrithione added nothing to the efficacy of topical clobetasol in a psoriasis clinical trial.

Three things were special about the Skin-Cap product: compliance, compliance, and compliance. First, it was a non-messy spray, so patients were more likely to use it than a messy ointment. Second, adherence was better with Skin-Cap because people thought they were using just zinc pyrithione. Topical clobetasol is often prescribed with the admonition, "This is the most powerful steroid known to man. If you use it for more than 2 weeks, seriously bad things may happen to you." It's not surprising that fear of adverse effects would reduce the use of prescription clobetasol when compared with Skin-Cap. Finally, people were highly motivated to use Skin- Cap because they paid for the medication themselves; having bought into the medication, they were going to use it. Poor adherence to topical treatments explains why clobetasol propionate worked so well in the blue can but not in the prescription ointment.

Studies suggest there is not one intervention able to improve adherence for all patients just as there is no such thing as a perfect agreement between a health professional and a perfect patient who is one hundred percent adherent to a perfect treatment plan (Ali et al, 2007; Koehler & Maibach, 2001). The WHO has suggested five interacting dimensions affecting adherence that are useful for considering solutions to this common problem in healthcare.The interaction of social and economic factors, healthcare team and system related factors, condition-related factors, therapy-related factors and patient-related factors affect adherence (Sabaté, 2003). They will be combined with patient stories from the literature and personal experience.

A young man is unable to work due to life-long eczema which flares up regularly and has resulted in many admissions to hospital for intensive skin treatments such as wet wraps. Narrowband UVB phototherapy has been beneficial in maintaining his improved skin after discharge from hospital along with weekly appointments in the outpatient department for a nurse to help maintain general skin care including application of topical creams. At the clinic appointment he requests more topical medication and is given a prescription by the doctor for five different skin creams including topical steroids for different areas of the body, moisturisers and a soap substitute. Later the nurse checks with the pharmacy and discovers the young man was only able to take two of the five treatments due to cost and leaves the remainder at the pharmacy.

Social and economic factors

Low economic status may force patients to choose between affording treatments and other financial demands. This factor also includes financial hardship together with on-going poverty related to war, illiteracy, low levels of education, unemployment, lack of social support networks, unstable living conditions, transport costs, culture and race, family dysfunction or beliefs about illness and treatment. Age is an importance factor related to adherence. Adolescents are less adherent than younger children. Infants are generally cared for by adults. Elderly people represent a population group with increasing chronic illnesses requiring complex long-term treatment and are more likely to have poor adherence to therapy. Older adults may have difficulty hearing and do not bring family members to medical appointments. They cannot apply topical treatments due to physical limitations requiring additional assistance, poor eyesight, joint problems, cognitive or functional impairments, fatigue and lack of motivation (Gupta et al., 2009; Sabaté, 2003; Taylor & Budge, 2020).

Healthcare team and system-related factors

The health care delivery system has the potential to affect patients' adherence behaviour. When healthcare professionals are feeling pressured and overwhelmed, time to educate patients in consultations tends to be eroded. Healthcare providers may lack time to adequately address adherence behaviour by short appointments and the inability for quick follow-up visits following starting therapy. Patients also demonstrate better adherence behaviour when they receive care from the same provider over time. They feel more comfortable with the consultation, do not have to repeat their story and are more confident about being involved in treatment decisions (Ring et al., 2007). Feldman et al., (2007) found adherence improved around the time of clinic visits known as "white coat compliance". Healthcare team and system-related factors also includes extensive waitlists for an appointment with a specialist, confusing referral systems, patient's ability to self-manage, lack of community support and collaboration with pharmacies including poor medication distribution systems (Kettis Lindblad et al., 2006; Sabaté, 2003).

Condition-related factors

People perceive skin conditions differently and this affects adherence to topical treatment (Burroni et al., 2015). *An eighteen year old who came to the outpatient clinic didn't seem bothered by extensive whole body psoriasis and considered it more a nuisance compared to another patient with one or two small psoriatic plaques visible on the arms who was very distressed by the diagnosis.* Other condition related factors are strong contributing influences on adherence including level of disability, disease progression, effectiveness of treatments. Drug and alcohol abuse increases non-adherence rates and depression is suggested as one of the strongest predictors of poor health outcomes and raises non-adherence by 27% (Martin et al., 2005; Sabaté et al., 2003).

This patient required a complex scheme to improve his deteriorating skin condition and does not understand the many items on the doctor's prescription. The plan included instructions on oral antibiotics, daily oral dermatology medications, daily bathing requirements, scalp treatment daily for four weeks, different topical corticosteroids daily in differing amounts for the face and body reducing from twice daily to once daily then twice weekly over six weeks, topical fungal cream for the groins and between the toes for two weeks, different daily moisturisers for day and night and a soap substitute. Some of the labels from the pharmacy instructed to "use as directed".

Therapy-related factors

Adherence falls off significantly when regimes increase the burden of disease and affects patients' lifestyles by being complicated, difficult to follow and for longer than 4 weeks duration (Ahn et al., 2016; Martin et al., 2005).

Therapy related factors include complexity of medical regimes, duration of treatment, previous treatment failures, frequent changes in treatment, the length of time taken to see an improvement related to the treatment, side effects and the availability of medical support to deal with patient concerns (Sabaté 2003). The important point here is the treatment plan should be simple and individualised based on clinical judgment informed by patient preference and lifestyle factors (Tan et al., 2012). Shorter dose durations and lower concentrations of a topical medication may reduce treatment response, however, if the right quantity is applied, it has been shown that a once daily application of a topical corticosteroid is equally effective as twice daily after the first two or three applications (Oakley, 2016, Storm et al., 2008).

A young man is admitted to hospital with a flare of eczema. He has had eczema since childhood and his mother has cautioned him against using topical corticosteroid medications. She brings herbal medicines and creams for him to apply in hospital. He adheres to the treatment regime prescribed by the doctors in hospital and his skin improves when regular topical corticosteroids and frequent moisturisers are applied. He agrees to attend phototherapy or light treatment. Phototherapy suppresses overactive immune system cells on the skin and increases vitamin D production which helps the skin's ability to fight bacteria. It was noticed that his skin had deteriorated at phototherapy appointments. He admitted he had stopped using the topical medications especially the topical corticosteroids because of 'steroid phobia' and fear of side effects.

Patient-related factors

It is suggested patients forget around 50% of instructions shortly after leaving a clinic especially if medical and technical terms are used during the consultation (Martin et al., 2005). Other physical factors include visual impairment, cognitive impairment, impaired mobility or dexterity and swallowing problems.

Other patient-related factors include (Sabaté, 2003):

Resources. Health literacy or the ability to read, understand, and act on health information impacts on adherence. Adherence to treatment plans may be an issue for patients with poor health literacy because they cannot remember or do not understand what is discussed. Health literacy is an especially serious problem for older people with multiple chronic conditions requiring constant medication and self-monitoring (Ahn et al., 2016).

Knowledge. Inadequate knowledge and skill in managing the disease symptoms and treatment. Misunderstanding and non-acceptance of the disease or of treatment instructions including monitoring. The Internet which has no regulations or criterion standards exemplifies another source of both information and inaccurate or contradicting misinformation which often confuses patients and contributes to non-adherence (Hodari et al., 2006).

Attitudes. Low attendance at follow-up appointments, anxiety over the complexity of the drug regime, fear of dependence and feeling stigmatised by the disease.

Beliefs. Disbelief in the diagnosis. Negative beliefs regarding the efficacy of treatment and about medicines as a whole and suspicion that doctors over-prescribe (Osterberg & Blaschke, 2005).

Perceptions Lack of self-perceived need for treatment, effect of treatment and the health risk related to the disease.

Expectations. Low treatment expectations, hopelessness, negative feelings and frustration with health care providers

Improving adherence

There is no single strategy that has shown to be successful across all the WHO dimensions of adherence especially when healthcare is constrained by time limits for patient consultations and budgets. A combination of strategies that are flexible and individualised may be required early in treatment to improve adherence (Martin et al., 2005; Nolan & Feldman, 2009; Sabaté, 2003).

Atreja et al., 2005 have proposed a mnemonic 'SIMPLE' that groups interventions able to enhance patient adherence

Simplifying regime characteristics

- reduce frequency of treatment
- match treatment to everyday activities
- use simple everyday language ask the patient to repeat instructions in their own words to ensure understanding
- use aids such as medication boxes

Imparting knowledge

- check patients understanding of their condition, treatment and prescription instructions,
- use written material,
- involve a nurse or pharmacist
- involve family members and friends especially if patients have low literacy skills
- access health education information on the Web

Modifying patient beliefs

- address beliefs and intentions early including ability to perform an action such as applying a topical medication.
- optimize behaviour change by tailoring treatments to suit each individual and ensuring patients:
  - susceptibility - perceive themselves to be at risk due to lack of adoption of healthy behaviour
  - severity - perceive their medical condition to be serious
  - self-sufficiency - perceive themselves as having the skills to perform healthy behaviours
  - benefits - believe in the positive effects of the suggested treatment
  - barriers - have ways to address their fears and concerns

Leaving the bias

- demographic factors play a minor role in adherence behaviours
- do not perceive nonadherence as the patients' fault only. Many other factors contribute to non-adherence
- modify education to the patients' level of understanding

Evaluating adherence

- measure and evaluate adherence regularly by asking the patient

Conclusion

Patient adherence is a complex issue leading to poor patient outcomes and a burden on the healthcare system. Success in the treatment of skin diseases is related to adherence and improving patient outcomes by ensuring treatment is planned with a strong patient focus.

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Glossary

Dermatological Terms and Conditions

Ulcer - full-thickness loss of the epidermis plus at least a portion of the dermis; it may extend into the subcutaneous tissue. An ulcer heals with a scar.

Ultraviolet radiation - the part of the sun's electromagnetic spectrum with a wavelength between 100nm and 400nm. It is classified into three parts UVA (230-400nm), UVB (290-320nm) and UVC (100-250nm).

Umbilicated - lesion has a central depression.

Ungual - an adjective pertaining to a nail.

Unilateral - the rash affects one side of the body only.

Urticaria - also called hives, is a family of disorders characterised by transient weals.

Uveitis - inflammation of the uvea, the pigmented vascular part of the eye which includes the iris, choroid and ciliary body.

Vasculitis - inflammation of blood vessels.

Vellus hair - the short, fine, light colored hair found over most of the body.

Verrucous - wart-like, having a thickened scaly undulating surface.

Vesicle - a small blister. It is a circumscribed lesion ≤ 1 cm in diameter that contains liquid (clear, serous or haemorrhagic). They may be single or multiple.

Vesiculobullous - an adjective describing the presence of both small and large blisters (vesicles and bullae).

Violaceous - describe a violet or purple hue.

Volar - refers to the hollow of the hands and sole but can also refer to the side of the adjoining skin, such as the fingers and forearm.

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