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Profile of Skin Diseases in The Ederley at Nursing House Surakarta

Prasetyadi Mawardi[1]*, Triasari Oktavriana[2], Ammarilis Murastami[2], Alamanda Murasmita[2], Sesia Pradestine[1], Osdatilla Esa Putri[1], Lifesia Natali Lidjaja[1], Vrenda Alia[1], Nila Kusumasari[1]

[1]Dermatology and Venereology Department, Faculty of Medicine Sebelas Maret University/Dr. Moewardi General Hospital Surakarta
[2]Dermatology and Venereology Departement/Sebelas Maret University Hospital
***Email** : prasetyadi_m@staff.uns.ac.id

Abstract

Background: The elderly population has been rapidly increasing over the past few decades. In Indonesia, the percentage of elderly residents is 8.75% of the total population. Aging is an unavoidable process, but it requires care to ensure a good quality of life for the elderly. One of the issues affecting the quality of life in the elderly is skin aging. Skin aging causes various complaints, especially itching or pruritus, which can reduce the quality of life for the elderly. Knowledge of the pathophysiology of skin diseases and skin aging, as well as the factors that affect them, particularly skin hydration, is necessary. This research is expected to be beneficial for medical professionals as well as family members of the elderly. The elderly residents at Wreda Griya PMI Peduli and Aisyiyah Nursing Home come from various regions and economic backgrounds. Therefore, the researchers consider the nursing home to be an appropriate place to conduct this study, as it can represent the elderly population from diverse backgrounds across Indonesia.**Objective:** This study aims to analyze the various skin disease profiles at the Griya PMI Peduli and Aisyiyah nursing homes in the city of Surakarta. **Methods:** This type of research is a survey using an observational study method with a descriptive design. **Results:** There were a total of 45 subjects at the Wreda PMI Peduli and Aisyiyah Nursing Home in Surakarta. Among them, 34 subjects had skin complaints, while 11 subjects were excluded because they did not have any skin complaints (7 subjects) or were uncooperative (4 subjects). The most common diagnosis was xerosis cutis (53%). The majority of patients did not have comorbidities (65%), with the most common comorbidity being hypertension (26%). **Conclusion:** The results of this study indicate that all the main skin complaints among the elderly at Panti Wreda in Kota Surakarta were dominated by itching or pruritus, with xerosis cutis being the primary etiology of pruritus in the elderly subjects of the study, accounting for 53%.

Keywords: Pruritus, elderly, xerosis cutis

Abstrak

Latar Belakang: *Populasi usia lansia meningkat dengan pesat pada beberapa dekade terakhir. Persentase penduduk lansia di Indonesia sebesar 8,75% dari seluruh populasi. Penuaan merupakan proses yang tidak dapat dihindari, namun perlu perawatan untuk menjamin kualitas hidup yang baik pada lansia. Salah satu permasalahan yang mempengaruhi kualitas hidup pada lansia adalah penuaan kulit. Penuaan kulit menyebabkan berbagai keluhan terutama gatal atau pruritus yang dapat menurunkan kualitas hidup lansia. Perlu pengetahuan mengenai patofisiologi penyakit kulit dan penuaan kulit serta faktor yang mempengaruhi, terutama hidrasi kulit. Penelitian ini diharapkan dapat bermanfaat bagi kalangan medis maupun anggota keluarga dari lansia. Lansia di Panti Wreda Griya PMI peduli dan Aisyiyah berjumlah cukup banyak, berasal dari berbagai daerah dan dari berbagai tingkat ekonomi. Maka dari itu, peneliti mempertimbangkan Panti Wreda adalah tempat yang sesuai untuk dilakukannya penelitian dan juga dapat mewakili seluruh lansia dari berbagai kalangan di Indonesia.* ***Tujuan:*** *Penelitian ini bertujuan untuk menganalisis berbagai profil penyakit kulit di Panti Wreda PMI Peduli dan Aisyiyah Kota Surakarta.* ***Metode:*** *Jenis penelitian ini adalah survey*

dengan metode penelitian studi observasional desain deskriptif. ***Hasil:*** *Terdapat sebanyak total 45 subyek di Panti Wreda PMI Peduli dan Aisyiyah Kota Surakarta. Terdapat 34 subyek yang mempunyai keluhan kulit, sedangkan 11 subyek dieksklusi karena tidak sedang memiliki keluhan kulit (7 subyek) dan tidak kooperatif (4 subyek). Diagnosis yang paling umum adalah xerosis kutis (53%). Sebagian besar pasien tidak memiliki komorbid (65%) dengan komorbid yang paling umum ditemui adalah hipertensi (26%).* ***Kesimpulan:*** *Hasil penelitian ini menunjukkan bahwa semua keluhan utama kulit pada lansia di Panti Wreda Kota Surakarta didominasi oleh gatal atau pruritus dengan xerosis kutis menjadi etiologi utama terjadinya pruritus pada lansia subyek penelitian sebesar 53%.*

Kata Kunci*: Pruritus, lansia, xerosis kutis*

I. INTRODUCTION

The elderly population has experienced significant growth in recent decades. It is projected that by 2050, one-fifth of the world's population will be over 65 years old.[1,2] According to the World Health Organization (WHO), an elderly person is defined as someone who has reached the age of 60 years and above. In Indonesia, the percentage of the elderly population is 8.75% of the entire population. The Central Java Statistics Agency (BPS) reported that in 2016, the number of elderly people was 2,729,117, which accounted for 8.02% of the total population of 34,019,095. Furthermore, in Surakarta City, there are 50,326 elderly people, with 9,019 in Laweyan sub-district and 4,328 in Pajang sub-district.[3]

As individuals age, it becomes increasingly important to take care of their skin. Skin aging can lead to discomfort, particularly itching or pruritus, significantly affecting the quality of life of the elderly.[4] Itching is an unpleasant sensation that often results in scratching.[5] Research has shown varying global prevalence of pruritus among the elderly, ranging from 6.4% in Tunisia to 41% in Thailand.[6,7] Unfortunately, there is currently no epidemiological data on pruritus in the elderly in Indonesia. The International Forum for the Study of Itch (IFSI) classifies pruritus into 3 groups: group 1 (pruritus in skin diseases), group 2 (pruritus in non-skin diseases), and group 3 (pruritus with chronic secondary lesions). In the elderly, pruritus primarily falls into group 1, with xerosis being the main cause.[8]

In order to address skin aging, a variety of therapeutic modalities are now available. However, understanding the physiology, mechanism, and clinical manifestations of skin aging is crucial in determining the most appropriate treatment.[9] Changes in permeability, biochemistry, vascularity, thermoregulation, irritant response, immune response, regenerative capacity, injury response, neurosensory perception, and at the genomic level are all part of the physiological changes associated with aging. As individuals age, the number of epidermal cells and turnover rate decrease, while the number of sebaceous glands declines, leading to dry and fragile skin. A reduction in the number of melanocytes results in whitish-grey hair and atypical pigmentation on the skin. Additionally, less active hair follicles contribute to increased hair loss and baldness.[4,10] Reduced skin hydration impacts the skin barrier, leading to pruritus, which can significantly affect the quality of life for the elderly.[11,12]

This research is expected to provide valuable insights for the medical community and families of the elderly. Given the significant number of elderly individuals at Griya PMI Care and Aisyiyah Nursing Home from diverse backgrounds and economic levels, the researcher views these facilities as suitable for conducting research that can adequately represent the elderly population in Indonesia. Notably, medications such as histamine H1 receptor antagonists, angiotensin-receptor blockers (ARBs), and angiotensin-converting enzyme (ACE) inhibitors can elicit skin itching.[1,11] Therefore, the author believes it is essential to examine skin conditions in the elderly, particularly at PMI Peduli and Aisyiyah Nursing Homes in Surakarta City.

II. METHODS

The study is a survey employing a descriptive design and observational research method. Data was gathered through interviews regarding major skin complaints, present and past medical history, and physical examinations. In this study, the inclusion criteria involved cooperative patients willing to participate and those with skin complaints, while the exclusion criteria are subject under 59 years old and

individuals without skin complaints. The anticipated outcome of this research is to acquire data on the prevalence of skin diseases among the elderly at Panti Wreda, laying the groundwork for implementing initiatives to enhance the elderly's quality of life. Additionally, the research aims to publish its findings.

III. HASIL DAN PEMBAHASAN

A total of 45 subjects were examined at PMI Peduli and Aisyiyah Nursing Homes in Surakarta City. Among them, 34 subjects had skin complaints, and 11 subjects were excluded due to either not having skin complaints (7 subjects) or being uncooperative (4 subjects). The anamnesis data included name, age, gender, chief complaint, history of present illness, history of past illness, and family history, as well as the diagnosis of the subject's complaint. All subjects fell into the elderly category according to WHO criteria. Women (68%) dominated the gender distribution, compared to men (32%), with a male to female ratio of 1:2. Itching was the main complaint in all subjects, and the most common diagnosis was cuticular xerosis (52%). The majority of patients had no comorbidities (70.8%), with hypertension being the most common comorbidity (26%) (see Table 1).

TABLE 1. SUBJECT CHARACTERISTICS

Variable	Case	Persentase
Sex		
Male	11	32%
Female	23	68%
Age		
60-69	16	47%
70-79	13	38%
≥80	5	15%
Chief complaint		
Itchy	29	85%
Burn	3	9%
Pain	2	6%
Diagnosis		
Scabies	1	3%
DKA	1	3%
Xerosis cutis	18	52%
Eritroderma	1	3%
Tinea	5	15%
Seborrheic dermatitis	1	3%
Candidiasis	3	9%
Neurodermatitis	1	3%
Dermatitis stasis	1	3%
Seborrheic keratosis	1	3%
Pruritus senilis	1	3%
Comorbidity		
Hypertension	9	26%
Diabetes Mellitus	1	3%
Osteoarthritis	1	3%
GERD	1	3%

IV. DISCUSSIONS

The International Forum for the Study of Itch (IFSI) classifies pruritus into three groups: group 1 (pruritus in skin diseases), group 2 (pruritus in non-skin diseases), and group 3 (pruritus with chronic secondary lesions). Pruritus in the elderly is mainly included in group 1, with xerosis as the leading cause.[8] A study of major skin complaints in the elderly at the Surakarta City Nursing Home found that itching was the predominant issue. According to IFSI, in group 1, the main cause is xerosis of the skin. The same conclusion was drawn from the study's results.

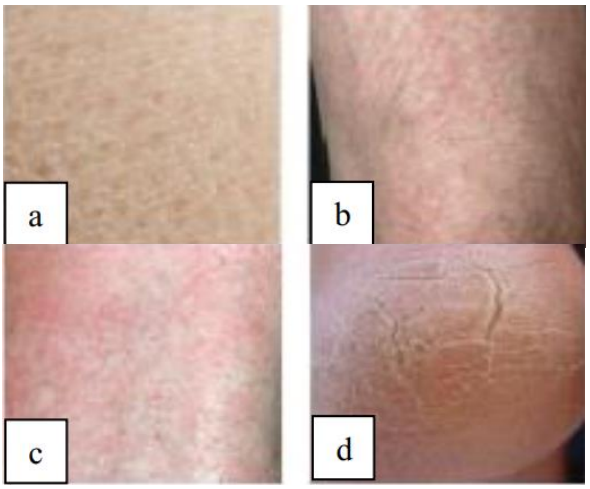

FIGURE 1. EFLORESCENCE OF CUTICULAR XEROSIS: A) CUTICULAR XEROSIS WITH DRY AND SCALY SKIN. B) XEROSIS CUTIS WITH ROUGH AND WRINKLED TEXTURE. C) XEROSIS CUTIS WITH ERYTHEMA. D) XEROSIS CUTIS WITH FISSURES

Cuticular xerosis is a condition where the skin lacks a lipid layer in the epidermis. Objective signs of cuticular xerosis include dry, scaly, rough, pale, and slightly greyish skin (Figure 1a). Additionally, the skin is characterized by reduced elasticity, rough texture, and wrinkles (Figure 1b); erythema (Figure 1c) and fissures may also occur (Figure 1d). Subjective symptoms include a feeling of tightness and pruritus, which may also be perceived as pain or a burning sensation by some patients.[13]

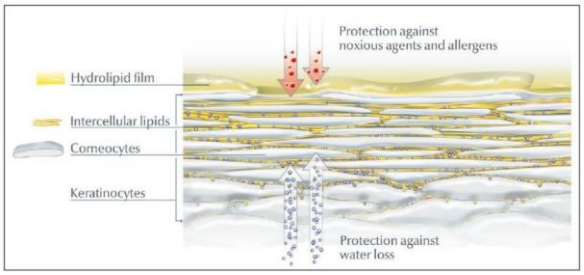

FIGURE 2. SKIN BARRIER STRUCTURE

Cuticular xerosis, especially when associated with pruritus, causes a significant reduction in the patient's quality of life.[14] Although all areas of the body can generally be affected, areas with fewer sebaceous glands, such as the lower legs, forearms, hands and feet, are usually affected more frequently.

Cuticular xerosis is related to a breakdown in skin barrier function and/or a lack of moisturizing factors in the skin, leading to reduced skin hydration. The natural skin barrier consists of 15-20 layers of corneocytes embedded in a lipophilic intercellular substance and arranged in regular columns in the stratum corneum (Figure 2). Corneocytes originate from keratinocytes that migrate from the basement membrane zone to the skin surface within four weeks. During this period, they differentiate into enucleated cells that are organelle-free and surrounded by a hard sheath that eventually exfoliates. The conversion of profilaggrin to filaggrin occurs in keratinocytes in the lower stratum corneum. Filaggrin facilitates the formation of disulfide bridges between keratin filaments and plays an important structural role in the skin barrier. In the upper layer of the stratum corneum, filaggrin is further broken down into pyrrolidine carboxylic acid, urocyanic acid and free amino acids. These components form the "natural moisturizing factor" (NMF), which is important for the water-binding capacity of the corneum layer.[15]

The distribution of the moisturizing factor glycerol through the aquaporin 3 channel may also be involved in the pathogenesis of cuticular xerosis.Healthy skin should be able to retain a water content of 10-20%. Both too high and too low water content result in impaired barrier function.Genetic alterations in filaggrin metabolism are associated with impaired barrier function and reduced water-binding capacity, and play a pathogenetic role in some types of ichthyosis and atopic dermatitis.[16]

The size, number and arrangement of corneocytes also affect the physical barrier function of the skin.Its effectiveness depends on the water content of the corneocytes, the age of the patient, and the time of year.Some inflammatory dermatoses (e.g., psoriasis) show hyperproliferation of smaller but not yet fully differentiated corneocytes.Certain medications, such as vitamin A derivatives, cause increased epidermopoiesis and also lead to smaller keratinocytes.

The intercellular lipid layer prevents water evaporation and is primarily responsible for the chemical barrier function of the skin. This layer contains keratinosomes (Odland bodies) composed of ceramides, sterols, and free fatty acids. They form a wide, parallel lamellar lipid layer that then seals the intercellular spaces between keratinocytes. The lipid composition in the stratum corneum is influenced by age, genetic predisposition, time of year, diet (e.g., percentage of essential fatty acids), as well as

medications (e.g., cholesterol-lowering agents). Hormone-mediated sebum production in the sebaceous glands also contributes to the amount of skin lipids. Intercellular lipids and NMF are removed from the skin by frequent contact with detergents, water, or solvents, resulting in compromised barrier function.

Cuticular xerosis is a clinical diagnosis. In the past, there has been no standardized approach to assessing cuticular xerosis and measuring its severity: in 1993, the EEMCO (European Group of Efficacy Measurement of Cosmetics and Other Topical Products) developed the ODS (Overall Dry Skin) score and the SRRC (scaling, roughness, redness, cracks) specific symptom score to assess the severity of dry skin. The SRRC/ODS score focuses only on visible objective signs. Subjective symptoms, such as pruritus, or affected body surface areas are not included in this score. Based on expert consensus, Günther et al. classify cuticular xerosis and its symptoms as follows. Subjective symptoms, such as pruritus, or affected body surface area are not included in this score. Based on expert consensus, Günther et al. classified cuticular xerosis and its symptoms into four levels of severity (0-3).[17] Visible signs still include roughness/flaking, erythema, and fissures. In addition, Günther et al. included pruritus and pain as subjective symptoms. They also took into account various body locations (face, trunk, hands/feet). The authors did not systematically combine the relevant scientific evidence available at the time; nor did they consider age-specific characteristics.

Severity scores used for atopic dermatitis (Eczema Area and Severity Index, EASI or SCOre of Atopic Dermatitis, SCORAD) or psoriasis (e.g., Psoriasis Area and Severity Index, PASI) only include xerosis as one symptom among others, and also consider the body surface area (BSA) affected. The aim of the expert consensus was to develop a diagnostic algorithm that assists in the selection of suitable ingredients for basic skin care: peeling, fissures, and erythema were identified as objective signs. The validated EEMCO five-point scale was used to assess disease severity.[18]

A series of in vivo non-invasive biophysical measurement methods are available to objectively assess the subjective feeling of dry skin, as well as the clinical diagnosis of cuticular xerosis. Measurement of barrier function by evaluating transepidermal water loss (TEWL) using "tewametry" and measurement of skin hydration by corneometry are among the most important parameters to objectively assess cuticular xerosis.

These methods are used as objective measurement parameters mainly in clinical trials. In addition, if required in specific cases, the amount of surface sebum can be measured using Sebumeter®; and skin roughness, using Visioscan®, a profilometry technique. A new method for measuring hydration in different layers of the skin, KOSIM IR® is an analytical system that combines infrared spectroscopy and confocal microscopy, allowing assessment of the water content of the skin based on depth. For clinical studies, a standardized environment (climate chamber) is required to obtain reproducible and conclusive measurements.[19]

The routine use of a combination of remoisturizing and lipid-replenishing topical agents to treat cuticular xerosis should not only be considered as regular skin care; rather, this approach constitutes one component of a causal treatment aimed at restoring skin barrier function.[20] Therefore, these topical agents are also referred to as "basic therapeutic agents".

One well-accepted method of treating cuticle xerosis is the use of basic skin care products. This covers skin conditions like ichthyosis and atopic dermatitis that are linked to cuticle xerosis. The stratum corneum, which

includes the NMF present in corneocytes and the related intercellular lipid layer, is the objective of basic skincare. When it comes to treating cuticular xerosis, the best topical skin care solution should either replicate the different elements of the skin barrier or help it to work again. Therefore, both lipophilic (lipid-replacing, film-forming) and hydrophilic (remoisturizing) components should be present in the product to be used (Figure 3).

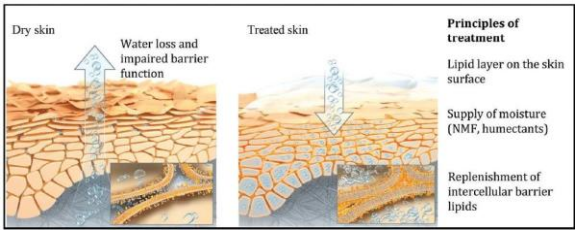

FIGURE 3. CUTIS XEROSIS PRINCIPAL THERAPY

Pruritus is an unpleasant sensation, and for the elderly, an undesirable aberration of senile skin. Robert Willian was one of the first to describe pruritus in the elderly as a personal affliction as follows: "so tormented with universal itching, that they feel uncomfortable for the rest of life". Quality of life has been less studied about pruritus in the elderly, but chronic itching in this population is a common problem with a significant impact on quality of life and sleep in elderly patients. It is suggested that depression associated with itching could be partly related to the effects of itching on sleep quality.

Pruritus is a subjective experience, making it difficult to evaluate in research, particularly in patients with cognitive impairment. Pruritus reduction is related with an improvement in quality of life. A study on the efficacy of gabapentin revealed a 50% reduction in pruritus and undeniable improvements in quality of life. According to Gatti and Jerri, the image of itching can influence the perception of the aged. Itching is frequently seen as a sign of being "unclean". An itching individual is viewed as a potential source of infection or infestation. This attitude can lead to the elderly being avoided and isolated, reducing their quality of life. Itching creates a barrier between the patient and the external world.[21]

Changes in the quality of life of the elderly can have an impact on morbidity and mortality. This impact requires additional studies with, for example, customized quality of life questionnaires. We found no representative studies on quality of life in older people with pruritus.

V. CONCLUSSION

The findings of this study show that itching or pruritus is the most common skin problems among the elderly at Surakarta City Nursing Home, with cuticular xerosis accounting for 52% of pruritus in older research subjects.

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