

Evaluation of Clinical Knowledge Regarding Geriatric Skin Conditions among Thai Physicians

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ABSTRACT

Objective: Assess the knowledge of common geriatric skin conditions in Thai physicians.

Materials and Methods: This retrospective study was conducted among Thai physicians attending annual dermatology courses by the Dermatological Society of Thailand from 2016 to 2019. Data was assessed based on knowledge of diagnosis and management of common geriatric skin conditions.

Results: A total of 197 participants, mainly general practitioners, were included. The highest percentage of correct diagnoses were benign erythematous, eczematous lesions (35.5%, senile purpura; 36.0%, xerotic eczema), and malignant diseases (35.5%, basal cell carcinoma; 27.4%, squamous cell carcinoma; 11.7%, subungual melanoma; 24.4%, acral lentiginous melanoma). In contrast, the lowest percentage of correct diagnosis were premalignant diseases (0.5%, arsenical keratosis; 4.6%, actinic keratosis; 1.0% Bowen's disease) and benign hypopigmented lesion (0.5%, stellate pseudoscar; 7.6%, idiopathic guttate hypomelanosis). Harmful treatment with systemic antifungal therapy was used in subungual melanoma (58.0%). Harmful management of senile comedone, subungual melanoma and acral lentiginous melanoma was significantly found in physicians given the incorrect diagnosis. ($p = 0.027$, $p < 0.001$, $p = 0.014$, respectively).

Conclusion: Most physicians recognized malignant lesions, benign erythematous or eczematous diseases in elderly skin. Surprisingly, almost all physicians couldn't diagnose premalignant lesions and benign hypopigmented lesions.

Keywords: Geriatric skin conditions; physician (Siriraj Med J 2023; 75: 1-6)

INTRODUCTION

A major global trend in population aging is rapidly occurring. By 2050, the proportion of the world's population aged 60 years will increase from 12% to 22%.¹ Thailand has also become an aging society, with 18.24% of the population aged over 60 years in 2021.² The emergence of senile dermatosis in the aging population is expected. Elderly skin goes through changes that are both intrinsic and extrinsic. Intrinsic changes result from chronological aging, such as thinning of the epidermis, reduction in the function of sweat and apocrine glands. Extrinsic changes result from UV and other environmental pollutants.

Both changes are responsible for the susceptibility of skin conditions in the elderly.^{3,4}

Diagnosis and management of skin conditions in the elderly are challenging due to many aspects, such as ordinary physiologic change, atypical disease presentation, and multiple comorbidities. Yet, there was no prior assessment report on the knowledge of geriatric skin conditions among Thai physicians. This knowledge gap will help identify potential improvements in understanding skin conditions in the elderly. Many studies have shown an increase in diagnostic capabilities and proper referral in general practitioners after providing educated sessions.^{5,6}

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For these reasons, this study aims to assess the knowledge of common geriatric skin conditions in Thai physicians.

MATERIALS AND METHODS

Study design

This retrospective study was conducted at the Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand. The protocol was approved by the Siriraj Institutional Review Board (COA no. Si 456/2012). The data includes knowledge of diagnosis and management of common dermatological conditions in the elderly, as seen in Table 2. We conducted a retrospective review of physicians' demographic data and working experiences derived from records at the annual short dermatology course for general practitioners. Which was held by the dermatological society of Thailand from 2016 to 2019.

We compiled a reviewed list of differential diagnoses and management. Management was categorized as proper, disadvantageous, and harmful. Proper management was defined as necessary, beneficial actions for patients, such as tissue biopsy in premalignant or malignant lesions. Disadvantageous management was defined as the actions which provided no benefits, had no, or only minor adverse effects on patients. Such as the use of topical steroids in premalignant or malignant lesions, which might cause some delay in tissue diagnosis. Defining harmful management encompasses actions causing severe adverse reactions or worsening skin conditions.

Statistical analysis

The PASW Statistics for Windows, version 18 (SPSS Inc., Chicago, IL, USA), was used for data analysis. Categorical data, such as the numbers of physicians who answered correctly for diagnosis or differential diagnoses and the number of each management category, were described using frequency and percentage. Evaluating the relationship between physicians' confidence level, the number of patients with skin conditions the physicians treated per week, and harmful management used a Chi-Squared analysis or Fisher's exact test. The difference in the proportion of harmful management between those who had correct and incorrect diagnoses were evaluated using Chi-Squared tests or Fisher's exact test.

RESULTS

Analysis of 197 physicians' records with complete data was conducted. Approximately half of the physicians were between 26-30 years old, and most were general practitioners (83.0%). For the working setting, 66.7% of the physicians worked at public hospitals, while 20.3% and 19.8% worked at private hospitals and clinics,

respectively. Regarding the experience in treating patients with dermatologic conditions, most physicians (67.4%) treated 0 to 10 patients per week (Table 1).

Benign erythematous, eczematous, and malignant lesions represented the highest percentage of correct diagnoses (Table 2). Among benign erythematous lesions, 36% of physicians gave a correct diagnosis for xerotic eczema, followed by 35.5% for senile purpura. Malignant lesions showed only 35.5% of physicians made accurate diagnoses for basal cell carcinoma, 27.4% for squamous cell carcinoma, and 24.4% for acral lentiginous melanoma. However, less than 10% of physicians had the correct answers in premalignant and benign hypopigmented lesions.

Harmful treatment was commonly found in subungual melanoma (58%). Principally, 174 physicians who had an incorrect diagnosis of this lesion, and 93 physicians (53%) misdiagnosed the lesions as onychomycosis. Therefore, many patients with melanoma were prescribed systemic antifungal therapy (Table 2).

Physicians with more than 30 patients per week recommended harmful management when diagnosing seborrheic keratosis and actinic keratosis, as seen in Table 3, which was significantly higher compared to physicians with 11-30 patients per week (11.8, 4.8, and 0.9%, respectively, with a p-value of 0.035 in seborrheic keratosis and 16.7, 8.6, and 3.3%, respectively with a p-value of 0.048 in actinic keratosis). In contrast, there was no difference in the percentage of harmful management among physicians with different confidence levels.

Table 4 compares the proportion of harmful management in correct and incorrect diagnoses. In all diseases, physicians with incorrect diagnoses tend to prescribe damaging solutions compared to correct diagnoses. There was no statistical significance between both groups except in senile comedone, subungual melanoma, and acral lentiginous melanoma.

DISCUSSION

This study shows that Thai general practitioners rarely recognize common skin conditions in the elderly. Additionally, premalignant skin lesions and benign hypopigmented lesions were the most common uncorrected diagnosis. The largest proportion of physicians recommended systemic antifungal therapy for subungual melanoma. For Thai general practitioners, these findings will improve their knowledge in recognizing skin conditions in the elderly.

In this study, physicians rarely recognized premalignant skin lesions compared to other benign and malignant skin lesions except for hypopigmented lesions. For premalignant lesions, actinic keratosis and Bowen

TABLE 1. Demographic data.

Characteristics	Number/total (%)
Age group	
20 – 25 years old	27/196 (13.8%)
26 – 30 years old	108/196 (55.1%)
31 – 45 years old	61/196 (31.1%)
Gender	
Female	137/196 (69.9%)
Previous dermatology short course taken	
No	164/168 (97.6%)
Yes	4/168 (2.4%)
Status of the doctors	
General practitioner	161/194 (83.0%)
Specialist other than dermatologists	22/194 (11.3%)
Diploma or M.Sc in dermatology	3/194 (1.5%)
Medical student	3/194 (1.5%)
Others	5/194 (2.6%)
Workplace*	
Public hospitals	128/192 (66.7%)
Private hospitals	39/192 (20.3%)
Private clinic	38/192 (19.8%)
Number of patients treated (per week)	
0 – 10 patients/week	126/187 (67.4%)
11 – 30 patients/week	42/187 (22.5%)
> 30 patients/week	19/187 (10.1 %)
Confidence in treating patients with dermatologic problems	
Very low confidence	53/194 (27.3%)
Low confidence	101/194 (52.1%)
Moderate confidence to High confidence	40/194 (20.6%)

*One subject could have more than one work place

Abbreviation: M.Sc, Master of Science

TABLE 2. Pretest answers of participants at the beginning of dermatology short course training.

Diseases	Total (n = 197)			Management		
	Correct differential diagnosis n (%)	Correct diagnosis n (%)	n	Proper (%)	Disadvantageous (%)	Harmful (%)
Benign disease						
Hypopigmented lesion						
Stellate pseudoscar	1 (0.5)	1 (0.5)	149	37 (24.8)	84 (56.4)	28 (18.8)
Idiopathic guttate hypomelanosis	15 (7.6)	15 (7.6)	131	32 (24.4)	89 (67.9)	10 (7.6)
Erythematous/eczematous lesion						
Senile purpura	81 (41.1)	70 (35.5)	143	121 (84.6)	20 (14.0)	2 (1.4)
Xerotic eczema	94 (47.7)	71 (36.0)	165	154 (93.3)	8 (4.8)	3 (1.8)
Progressive pigmentary dermatosis	4 (2.0)	2 (1.0)	130	59 (45.4)	56 (43.1)	15 (11.5)
Lump and bump lesion (Tumor and plaque)						
Seborrheic keratosis	51 (25.9)	34 (17.3)	176	168 (95.5)	3 (1.7)	5 (2.8)
Solar lentigo	20 (10.2)	12 (6.1)	141	56 (39.7)	77 (54.6)	8 (5.7)
Senile comedone	46 (23.4)	41 (20.8)	121	46 (38.0)	59 (48.8)	16 (13.2)
Premalignant disease						
Arsenical keratosis	3 (1.5)	1 (0.5)	163	78 (47.9)	74 (45.4)	11 (6.7)
Actinic keratosis	14 (7.1)	9 (4.6)	151	20 (13.2)	122 (80.8)	9 (6.0)
Bowen's disease	3 (1.5)	2 (1.0)	137	36 (26.3)	86 (62.8)	15 (10.9)
Malignant disease						
Basal cell carcinoma	90 (45.7)	70 (35.5)	186	179 (96.2)	5 (2.7)	2 (1.1)
Squamous cell carcinoma	71 (36.0)	54 (27.4)	173	162 (93.6)	9 (5.2)	2 (1.2)
Subungual melanoma	30 (15.2)	23 (11.7)	162	35 (21.6)	33 (20.4)	94 (58.0)
Acral lentiginous melanoma	62 (31.5)	48 (24.4)	152	126 (82.9)	13 (8.6)	13 (8.6)

disease typically present with an erythematous patch with a dry scale that sometimes resembles other skin conditions. As in this study, physicians mostly misdiagnosed premalignant lesions as psoriasis or chronic eczema. Similarly, a previous study showed general practitioners provided correct diagnosis of benign skin tumor lesions (seborrheic keratosis, melanocytic nevus) better than premalignant (actinic keratosis, nervous dysplasia).⁷ Most primary care physicians from selected countries provide acceptable diagnosis of basal cell carcinoma than actinic keratosis (90% VS 74%).⁸ Yet, both studies had significantly higher overall correct diagnoses, including premalignant skin lesions, compared to this study. This study highlights the need for educational intervention for Thai general practitioners who can't recognize common skin lesions in the elderly. The need for intervention is

especially evident when diagnosing premalignant and benign hypopigmented lesions. Subungual melanoma is a severe subtype of acral lentiginous melanoma commonly presented with longitudinal melanonychia. The presence of Hutchinson's sign, ulceration, and broad heterogeneous band appearance suggested the diagnosis of subungual melanoma.^{9,10} Subungual melanoma is common among Asians and Blacks.¹¹ Our study demonstrated a low correct diagnosis for these lesion types. Table 4 also shows that harmful management was concordant with misdiagnosis. Thus, Thai general practitioners need to recognize the alarming features for correct diagnosis to avoid delayed or harmful treatment.

Limitations of this retrospective study include collected data that may have some bias and missing data. Management was dependent on the diagnosis. Therefore,

TABLE 3. Comparison of harmful management among physicians with different level of experience according to the average numbers of dermatologic patients per week.

Diseases	Number of dermatologic patients per week			P-value
	0-10 patients	11-30 patients	> 30 patients	
	n (%)	n (%)	n (%)	
Benign disease				
Hypopigmented lesion				
Stellate pseudoscar	19/88 (21.6)	3/38 (7.9)	4/16 (25)	0.132
Idiopathic guttate hypomelanosis	7/79 (8.9)	2/33 (6.1)	1/14 (7.1)	1.000
Erythematous/eczematous lesion				
Senile purpura	1/88 (1.1)	1/34 (2.9)	0/17 (0.0)	0.416
Xerotic eczema	2/102 (2.0)	1/37 (2.7)	0/18 (0.0)	
Progressive pigmentary dermatosis	9/76 (11.8)	4/33 (12.1)	2/17 (11.8)	1.000
Lump and bump lesion				
Seborrheic keratosis	1/110 (0.9)	2/42 (4.8)	2/17 (11.8)	0.035*
Solar lentigo	5/90 (5.6)	3/32 (9.4)	0/15 (0.0)	0.742
Senile comedone	12/72 (16.7)	2/30 (6.7)	2/15 (13.3)	
Premalignant				
Arsenical keratosis	7/101 (6.9)	1/39 (2.6)	2/17 (11.8)	0.308
Actinic keratosis	3/92 (3.3)	3/35 (8.6)	3/18 (16.7)	0.048*
Bowen's disease	8/81 (9.9)	6/37 (16.2)	1/14 (7.1)	0.591
Malignant disease				
Basal cell carcinoma	2/116 (1.7)	0/42 (0.0)	0/19 (0.0)	0.687
Squamous cell carcinoma	1/108 (0.9)	1/40 (2.5)	0/18 (0.0)	0.578
Subungual melanoma	63/100 (63.0)	19/39 (48.7)	9/16 (56.3)	0.294
Acral lentiginous melanoma	6/94 (6.4)	5/38 (13.2)	2/16 (12.5)	0.369

*A p-value less than 0.05 indicated statistical significance, Chi-squared test.

an incorrect diagnosis leads to inappropriate treatment. In reality, physicians should observe or refer patients to dermatologists for proper diagnosis. In conclusion, benign erythematous/eczematous diseases and malignant lesions, including xerotic eczema, basal cell carcinoma, senile purpura, squamous cell carcinoma, and acral lentiginous melanoma, were the elderly skin conditions that the physicians most recognized. In contrast, premalignant lesions and benign hypopigmented lesions couldn't be diagnosed by almost all physicians.

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TABLE 4. Comparison of harmful management in participants given correct and incorrect diagnosis.

Diseases	Harmful management in correct diagnosis n (%)	Harmful management in incorrect diagnosis n (%)	P-value
Benign disease			
Hypopigmented lesion			
Stellate pseudoscar	0/1 (0.0)	28/148 (18.9)	1.000
Idiopathic guttate hypomelanosis	0/13 (0.0)	10/118 (8.5)	0.275
Erythematous/eczematous lesion			
Senile purpura	0/62 (0.0)	2/81 (2.5)	0.505
Xerotic eczema	0/67 (0.0)	3/98 (3.1)	0.272
Progressive pigmentary dermatosis	0/2 (0.0)	15/128 (11.7)	1.000
Lump and bump lesion (Tumor and plaque)			
Seborrheic keratosis	0/30 (0.0)	5/146 (3.4)	0.590
Solar lentigo	0/9 (0.0)	8/132 (6.1)	0.447
Senile comedone	1/36 (2.8)	15/85 (17.6)	0.027*
Premalignant disease			
Arsenical keratosis	0/1 (0.0)	11/162 (6.8)	1.000
Actinic keratosis	0/8 (0.0)	9/143 (6.3)	0.464
Bowen's disease	0/2 (0.0)	15/135 (11.1)	1.000
Malignant disease			
Basal cell carcinoma	0/70 (0.0)	2/116 (1.7)	0.528
Squamous cell carcinoma	0/54 (0.0)	2/119 (1.7)	1.000
Subungual melanoma	1/23 (4.3)	93/139 (66.9)	<0.001*
Acral lentiginous melanoma	0/45 (0.0)	13/107 (12.1)	0.014*

*A p-value less than 0.05 indicated statistical significance, Chi-squared test.

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