

Skin diseases among elderly inhabitants of Bialystok, Poland

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Purpose: The aim of the study was to assess the most frequent skin diseases in people over 60 years old among residents of a public nursing home and students of the University of the Third Age in Bialystok.

Subjects and methods: The study was carried out from April to June 2015 in Bialystok, in two groups: 100 residents of a public nursing home and 100 participants of the University of the Third Age, aged over 60 years, using a method of diagnostic survey with the authors' anonymous questionnaire.

Results: A total of 30.5% of respondents (n=61) had been treated due to skin diseases, most frequently for 6–10 years (26.2%). Fungal infection, psoriasis, and atopic dermatitis were the most frequent dermatological diseases among the study elderly. The sites affected most frequently with these diseases were upper and lower extremities and the face. A majority of the examined (63.9%) visited a dermatologist, but only when it was necessary.

Conclusion: Skin diseases constitute a significant health problem among seniors. The elderly should be educated about healthy lifestyle, preventing the development of fungal infections. It is necessary to encourage seniors to visit dermatologists, seeking professional advice.

Keywords: skin diseases, elderly, fungal infections, psoriasis

Introduction

The aging process is determined by numerous intrinsic and extrinsic factors and affects all body parts and tissues, including the skin. In the literature,^{1,2} the skin-aging process determines the development of numerous skin diseases. It is estimated that every 14th visit at the doctor's surgery is associated with skin diseases.³

Excessive predisposition to dryness is one of typical consequences of aging, which may lead to excessive dryness of the skin, affected additionally by environmental factors, resulting in intensification of itching among elderly patients.⁴ It is underlined^{5,6} that skin lesions may reflect disease processes occurring in the systems and body parts and have a correlation with therapeutic preparations, which in consequence may generate more frequent skin problems in the elderly, determined additionally by many coexisting diseases and medications taken simultaneously.

Skin diseases, typical of the senior age, are usually associated with impaired vascularity and skin symptoms of autoimmune processes, viral infections, and inflammations in the organism.^{3,6,7} Various types of eczema, vesicular diseases, stasis dermatitis, bedsores, rosacea, lichen sclerosus, and herpes zoster are statistically most frequently found in seniors.^{3,6,7}

The aim of this study was to assess the most frequent skin diseases in people over 60 years old among residents of a public nursing home (PNH) and students of the University of the Third Age (U3A) in Bialystok, Poland.

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Subjects and methods

Participants

The research was conducted in two groups among 100 residents of a PNH at 9 Swierkowa Street in Bialystok and among 100 students of the U3A in Bialystok. The only criterion for the selection group for the study was age over 60 years old. A total of 200 people over 60 years old were included in the study.

Measurements and procedure

This was a cross-sectional study. A method of diagnostic survey using the authors' anonymous survey questionnaire was applied in the study. It consisted of 35 questions, both open and closed, one or multiple choice, and a review of patients' dermatological histories. The questions concerned sociodemographic characteristics (sex, marital status, education, financial status), the incidence of skin diseases among the examined (treatment due to skin diseases confirmed by dermatological examinations, length of treatment, the name of the skin disease, the site of lesions, frequency of visits at outpatient dermatological departments, family history of dermatological diseases).

Procedure and ethical considerations

The study was performed from April to June 2015. The research conformed with the Good Clinical Practice guidelines, and the procedures followed were in accordance with the Helsinki Declaration of 1975, as revised in 2000 (concerning the ethical principles for the medical community and forbidding release of the name of the patient, initials, or the hospital evidence number), and with the ethical standards of the institutional committee on human experimentation (statute from the Bioethics Committee of the Medical University in Bialystok R-I-002/417/2014). All the patients received an oral invitation to participate in this research and signed an informed consent form.

Statistical analysis

All data obtained during the study were compiled using Microsoft Excel 2010. Statistical analysis was completed by applying the χ^2 -test. Statistical hypotheses were verified at the $P=0.05$ significance level. Calculations were completed using the Statistica Data Miner + QC PL program.

Results

The baseline characteristics of the study population are shown in Table 1. Skin disease confirmed by a dermatologist was reported in 30.5% of respondents ($n=61$), including 34.0% of PNH residents and 27.0% of U3A students. Therefore, 61

Table 1 Baseline characteristics of the study population

Variables	PNH residents	U3A students	Total
Age			
61–70 years			
n	43	39	82
%	43%	39%	41%
>70 years			
n	57	61	118
%	57%	61%	59%
Marital status			
Married			
n	10	50	60
%	10%	50%	30%
Widow/widower			
n	47	38	85
%	47%	38%	42.5%
Single			
n	26	4	30
%	26%	4%	15%
Divorced			
n	17	7	24
%	17%	7%	12%
Separated			
n	0	1	1
%	0	1%	0.5%
Financial status			
Very good			
n	4	0	4
%	4%	0	2%
Good			
n	21	58	79
%	21%	58%	39.5%
Average			
n	54	36	90
%	54%	36%	45%
Rather bad			
n	12	0	12
%	12%	0	6%
Bad			
n	9	0	9
%	9%	0	4.5%
Hard to say			
n	4	2	6
%	4%	2%	3%
Level of education			
Higher			
n	15	50	65
%	15%	50%	32.5%
Secondary			
n	26	44	70
%	26%	44%	35%
Technical			
n	12	5	17
%	12%	5%	8.5%
Vocational			
n	27	1	28
%	27%	1%	14%
Primary			
n	20	0	20
%	20%	0	10%
Total			
n	100	100	200
%	100%	100%	100%

Abbreviations: PNH, public nursing home; U3A, University of the Third Age.

Table 2 Morbidity of skin disease in the study population

Morbidity of skin disease	PNH residents	U3A students	Total	P-value
Are you being treated due to any skin disease?				0.282
Yes				
n	34	27	61	
%	34%	27%	30.5%	
No				
n	66	73	139	
%	66%	73%	69.5%	
Total				
n	100	100	200	
%	100%	100%	100%	

Abbreviations: PNH, public nursing home; U3A, University of the Third Age.

of 200 people were included in the next stage of the study. Table 2 shows detailed results.

More than a quarter of respondents (26.2%), including ten PNH residents (29.4%), had been treated due to skin diseases for 6–10 years. A total of 23% of the questioned had been treated for 1–5 years (the most frequent length of treatment among U3A participants [29.6%]). The same percentage (23%) was found for all those examined for treatment of 11–15 years. A total of 16.4% of the questioned had been treated for longer than 15 years, and the remaining 11.5% less than a year.

Fungal infection, psoriasis, and atopic dermatitis were the most common dermatological diseases among the seniors in the study (Table 3). Lesions were most frequently observed on the lower and upper extremities and the face (Table 4).

A majority of those questioned (63.9%), including 55.9% of PNH residents and 74.1% of U3A participants, visited a dermatologist, but only when it was necessary. More than a quarter of respondents (26.2%) – 32.4% of PNH residents and 18.5% of U3A members – systematically visited a dermatologist's surgery. The same percentage of all respondents (4.9%) did not seek a dermatologist's advice or applied self-therapy.

Discussion

Dry skin and itching are the most typical dermatological problems in the elderly, and constituted as much as 80.0% of all findings in this population group.⁴ Skin inflammations, such as eczema, psoriasis, and pruritic dermatosis, are relatively frequently reported.^{4,8} Though the diseases listed are not terminal, they are characterized by high morbidity and significantly decrease the life quality of the elderly, especially in the last months of their lives.⁸

The most frequent skin problem in the elderly in the world is eczema.⁹ Thapa et al⁹ carried out a study among 330 elderly patients in Nepal. The most frequent skin problem was also eczema (35.8%). Similarly, eczema was the skin disease the most frequently diagnosed in the elderly in the

Table 3 Dermal diseases among respondents

Skin diseases diagnosed in respondents	PNH residents	U3A students	Total	P-value
Atopic dermatitis				0.124
Yes				
n	2	5	7	
%	5.9%	18.5%	11.5%	
No				
n	32	22	54	
%	94.1%	81.5%	88.5%	
Total				
n	34	27	61	
%	100%	100%	100%	
Vitiligo				0.696
Yes				
n	2	1	3	
%	5.9%	3.7%	4.9%	
No				
n	32	26	58	
%	94.1%	96.3%	95.1%	
Total				
n	34	27	61	
%	100%	100%	100%	
Furuncle				0.868
Yes				
n	1	1	2	
%	2.9%	3.7%	3.3%	
No				
n	33	26	59	
%	97.1%	96.3%	96.7%	
Total				
n	34	27	61	
%	100%	100%	100%	
Photodermatosis				0.369
Yes				
n	1	0	1	
%	2.9%	0	1.6%	
No				
n	33	27	60	
%	97.1%	100%	98.4%	
Total				
n	34	27	61	
%	100%	100%	100%	
Fungal infection				0.396
Yes				
n	8	9	17	
%	23.5%	33.3%	27.9%	
No				
n	26	18	44	
%	76.5%	66.7%	72.1%	
Total				
n	34	27	61	
%	100%	100%	100%	
Epidermal cyst				0.107
Yes				
n	0	2	2	
%	0	7.4%	3.3%	
No				
n	34	25	59	
%	100%	92.6%	96.7%	
Total				
n	34	27	61	
%	100%	100%	100%	

(Continued)

Table 3 (Continued)

Skin diseases diagnosed in respondents	PNH residents	U3A students	Total	P-value
Lichen planus				0.868
Yes				
n	1	1	2	
%	2.9%	3.7%	3.3%	
No				
n	33	26	59	
%	97.1%	96.3%	96.7%	
Total				
n	34	27	61	
%	100%	100%	100%	
Dandruff				0.868
Yes				
n	1	1	2	
%	2.9%	3.7%	3.3%	
No				
n	33	26	59	
%	97.1%	96.3%	96.7%	
Total				
n	34	27	61	
%	100%	100%	100%	
Psoriasis				0.560
Yes				
n	7	4	11	
%	20.6%	14.8%	18%	
No				
n	27	23	50	
%	79.4%	85.2%	82%	
Total				
n	34	27	61	
%	100%	100%	100%	
Balding				0.042
Yes				
n	1	5	6	
%	2.9%	18.5%	9.8%	
No				
n	33	22	55	
%	97.1%	81.5%	90.2%	
Total				
n	34	27	61	
%	100%	100%	100%	
Angioma				0.254
Yes				
n	4	1	5	
%	11.8%	3.7%	8.2%	
No				
n	30	26	56	
%	88.2%	96.3%	91.8%	
Total				
n	34	27	61	
%	100%	100%	100%	
Rash				0.868
Yes				
n	1	1	2	
%	2.9%	3.7%	3.3%	
No				
n	33	26	59	
%	97.1%	96.3%	96.7%	
Total				
n	34	27	61	
%	100%	100%	100%	

(Continued)

Table 3 (Continued)

Skin diseases diagnosed in respondents	PNH residents	U3A students	Total	P-value
Shingles				0.937
Yes				
n	4	3	7	
%	11.8%	11.1%	11.5%	
No				
n	30	24	54	
%	88.2%	88.9%	88.5%	
Total				
n	34	27	61	
%	100%	100%	100%	
Erysipelas				0.369
Yes				
n	0	1	1	
%	0	3.7%	1.6%	
No				
n	34	26	60	
%	100%	96.3%	98.4%	
Total				
n	34	27	61	
%	100%	100%	100%	
Erythema				0.868
Yes				
n	1	1	2	
%	2.9%	3.7%	3.3%	
No				
n	33	26	59	
%	97.1%	96.3%	96.7%	
Total				
n	34	27	61	
%	100%	100%	100%	
Ichthyosis				0.369
Yes				
n	1	0	1	
%	2.9%	0	1.6%	
No				
n	33	27	60	
%	97.1%	100%	98.4%	
Total				
n	34	27	61	
%	100%	100%	100%	
Scabies				0.107
Yes				
n	2	0	2	
%	5.9%	0	3.3%	
No				
n	32	27	59	
%	94.1%	100%	96.7%	
Total				
n	34	27	61	
%	100%	100%	100%	
Acne				0.811
Yes				
n	2	2	4	
%	5.9%	7.4%	6.6%	
No				
n	32	25	57	
%	94.1%	92.6%	93.4%	

(Continued)

Table 3 (Continued)

Skin diseases diagnosed in respondents	PNH residents	U3A students	Total	P-value
Total				
n	34	27	61	
%	100%	100%	100%	
Eczema				0.423
Yes				
n	1	2	3	
%	2.9%	7.4%	4.9%	
No				
n	33	25	58	
%	97.1%	92.6%	95.1%	
Total				
n	34	27	61	
%	100%	100%	100%	
Granuloma				0.369
Yes				
n	0	1	1	
%	0	3.7%	1.6%	
No				
n	34	26	60	
%	100%	96.3%	98.4%	
Total				
n	34	27	61	
%	100%	100%	100%	

Abbreviations: PNH, public nursing home; U3A, University of the Third Age.

studies of Thaipisuttikul (34.9%),⁴ Liao et al (34.9%),⁵ and Yap et al (35.3%).¹⁰ Among nearly 50,000 people of German origin, eczema was reported in 8.9%,¹¹ whereas in another earlier population study carried out in this country, it was reported in only 1.4%.¹² In studies performed in Turkey, Tanzania, and Croatia, relatively low morbidity of eczema was reported (11.1%, 11.9%, and 16.6%, respectively).^{13–15} In Egypt, this skin problem constituted nearly 20.0% of all cases.¹⁶ In our study, eczema was found only in 4.9% of people. In another Polish study,¹⁷ eczema was reported in 15% of patients.

In our study, fungal infections constituted the main health problem (27.9%). The incidence of these infections was confirmed by international examinations,^{9,10,14,18–20} showing that fungal infections were common among seniors. In Liao et al,⁵ fungal infections affected 6,429 elderly patients, which constituted 38% of the study population in Taiwan, in Abdel-Hafez et al¹⁶ 1,295 people, ie, almost 1.2% of the study population, while in the study of Yap et al¹⁰ only 4.5% of Singapore inhabitants. A high index of morbidity of fungal infections (20.5%) was established in the vicinity of Alexandria, in Egypt.²¹ In Iran, fungal infections affected 9.0% of the study group,²² and in Tanzanian villages, morbidity was observed in the range of 4.0%–6.62%.^{23,24} In Ghana, the morbidity of fungal infections equaled 10.6%, while in Great Britain it was only 1.9%.²⁵ The cause of these differences

Table 4 Location of lesions among respondents

Where do you have lesions?	PNH residents	U3A students	Total	P-value
Head				0.585
Yes				
n	11	7	18	
%	32.4%	25.9%	29.5%	
No				
n	23	20	43	
%	67.6%	74.1%	70.5%	
Total				
n	34	27	61	
%	100%	100%	100%	
Face				0.873
Yes				
n	12	9	21	
%	35.3%	33.3%	34.4%	
No				
n	22	18	40	
%	64.7%	66.7%	65.5%	
Total				
n	34	27	61	
%	100%	100%	100%	
Chest				0.937
Yes				
n	4	3	7	
%	11.8%	11.1%	11.5%	
No				
n	30	24	54	
%	88.2%	88.9%	88.5%	
Total				
n	34	27	61	
%	100%	100%	100%	
Back				0.321
Yes				
n	7	3	10	
%	20.6%	11.1%	16.4%	
No				
n	27	24	51	
%	79.4%	88.9%	83.6%	
Total				
n	34	27	61	
%	100%	100%	100%	
Hands				0.246
Yes				
n	15	8	23	
%	44.1%	29.6%	37.7%	
No				
n	19	19	38	
%	55.9%	70.4%	62.3%	
Total				
n	34	27	61	
%	100%	100%	100%	
Legs				0.471
Yes				
n	17	11	28	
%	50%	40.7%	45.9%	
No				
n	17	16	33	
%	50%	59.3%	54.1%	
Total				
n	34	27	61	
%	100%	100%	100%	

(Continued)

Table 4 (Continued)

Where do you have lesions?	PNH residents	U3A students	Total	P-value
Sexual organs				0.696
Yes				
n	2	1	3	
%	5.9%	3.7%	4.9%	
No				
n	32	26	58	
%	94.1%	96.3%	95.1%	
Total				
n	34	27	61	
%	100%	100%	100%	
Groin				0.422
Yes				
n	3	1	4	
%	8.8%	3.7%	6.6%	
No				
n	31	26	57	
%	91.2%	96.3%	93.4%	
Total				
n	34	27	61	
%	100%	100%	100%	
Nails				0.274
Yes				
n	5	7	12	
%	14.7%	25.9%	19.7%	
No				
n	29	20	49	
%	85.3%	74.1%	80.3%	
Total				
n	34	27	61	
%	100%	100%	100%	

Abbreviations: PNH, public nursing home; U3A, University of the Third Age.

between different parts of the world could be specific climatic and prophylactic factors of these communities.

In our study, the second disease with regard to incidence was psoriasis. In Reszke et al,²⁶ in patients of the Department of Dermatology and Geriatrics of the Medical University of Wrocław, 69 patients (38.5%) were diagnosed with this disease. Other research¹⁷ performed in Poland confirmed the higher morbidity of psoriasis among Polish seniors (10.8%) compared to exotic countries, such as Singapore and Taiwan. In the Singapore study,¹⁰ this problem affected fewer patients and constituted 3.1% of all confirmed skin diseases. A similar percentage of cases was reported in Taiwan (3.9%).⁵ In the German study, the percentage of people with psoriasis was lower and equaled 2%,¹¹ and in study carried in Egypt only 0.19% of all diagnosed skin diseases, which equaled 15 clinical cases.¹⁶ The morbidity of psoriasis is markedly higher in the USA and European countries,²⁷ and it has been proved that Caucasians are more prone to develop this skin problem.²⁸ The standard example illustrating this correlation

are the studies of Doe et al,²⁵ carried out in hospitals in the UK and Ghana: in the British hospital, 6.2% of psoriasis cases were reported, whereas in Ghana only 0.4%.²⁵ Summing up, in the case of psoriasis, genetic and environmental factors are the main determinant.

Conclusion

Skin diseases pose a significant health problem in the senior population of Białystok. Fungal infection is the most frequently reported skin disease, so seniors should be educated how to have a hygienic lifestyle. There is a need to encourage the elderly to seek dermatological advice offered by medical specialists.

Disclosure

The authors report no conflicts of interest in this work.

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