

Dermatology Consultation in the Geriatrics Department of a Tertiary Hospital in China: A Retrospective Study of 178 Patients

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Objective: Dermatological consultation plays an important role in diagnosing and treating skin diseases in the Department of Geriatrics. The objective of this study is to provide an analysis of the factors leading geriatric inpatients to seek dermatological consultation, aiming to facilitate accurate diagnosis and effective treatment of skin diseases by healthcare professionals specializing in geriatrics and dermatology.

Methods: The electronic health records of hospitalized patients in the Department of Geriatrics who applied for dermatological consultation at the Second Hospital of Shandong University from June 1, 2022, to June 1, 2023, were retrieved. Sex, age, number of consultations, reason for dermatology consultation, and final diagnosis by dermatologists were reviewed.

Results: A total of 216 consultations of 178 patients (n=178, 95 men and 83 women) were collected in this study, of whom 153 (86.0%) required only one consultation, 19 (10.7%) required two consultations, and 4 (2.2%) required three consultations. The reasons for dermatology consultations were divided into three categories: the first was for the definitive diagnosis of a new skin condition that developed during the patient's hospitalization (n=165, 76.4%), the second was for the follow-up of the condition and adjustment of medication (n=40, 18.5%), and the third was for the evaluation of the patient's disease that existed before admission to the hospital (n=11, 5.1%). In 165 consultations, most of these diseases (n=131, 79.4%) can be diagnosed by patients' conscious symptoms and clinical manifestations. Some of them need to be diagnosed or differentially diagnosed with the help of supplementary examinations, such as microscopic examination of scabies or fungi, and pathological examination.

Conclusion: This study summarized the reasons for dermatology consultations for geriatric inpatients and found that dermatitis/eczema and infectious diseases were the common types of diseases consulted. The findings of this study contribute to the enhanced comprehension and management of dermatological conditions in hospitalized patients by geriatricians, as well as facilitating more efficient diagnosis and treatment by dermatologists.

Keywords: geriatrics, dermatology consultation, skin diseases

Introduction

It is reported that the proportion of adults over 60 years old is increasing rapidly, and it is estimated that it will reach about one-sixth of the global population by 2030.^{1,2} As the age increases, the skin barrier function of the elderly decreases, which makes them more prone to skin issues such as itching, dermatitis, and infection.³⁻⁶ Therefore, elderly patients hospitalized in geriatrics with multisystemic diseases are more likely to be at risk for cutaneous disorders. It is a challenge for healthcare resources, including dermatologists and geriatricians. The current volume of interdisciplinary consultations has increased over time due to more detailed subspecialty categorization. Analysis of Medicare data showed that, on average, each Medicare patient receives 2.6 consultations per hospital admission.⁷ In addition, many studies have shown that dermatologists are often required to assist in the diagnosis and treatment of skin problems in

elderly patients during hospitalization and that dermatology consultations during hospitalization play an important role in the diagnosis and treatment of skin diseases.^{8–10} However, because of cross-professional, there are some obstacles to effective consultation communication, including the choice of consultation department, the description of skin lesions, and empirical medication. This study aimed to understand and analyze the common reasons for geriatric inpatient consultations and provide targeted education for geriatricians, as well as to summarize and analyze the results of the study to seek a better way of consulting with geriatric patients and to provide them with a more efficient medical consultation service.

Methods

Retrieve and organize information on patients requesting dermatology consultations in the department of geriatrics at the second hospital of Shandong University between June 1, 2022, and June 1, 2023. Inclusion criteria included patient age greater than or equal to 60 years, request for dermatology consultation, and successful completion.

Information on patients was also collected, which included gender, age, number of consultations, the reason for dermatology consultation, final diagnosis made by dermatologists, and the ability to make a diagnosis using the information provided in the first consultation. All consultations were done by mid-level or senior dermatologists. This study was approved by the Institutional Review Board of the Second Shandong University Hospital (Number: KYLL-2023LW075).

The data for this study were collected and organized by authors LY and ZQ according to the 10th version of the International Classification of Diseases (ICD).

Results

Baseline Characteristics

A total of 216 consultations were gathered from 178 patients (n=178, 95 men, 83 women), and the average age of the patients attending the consultation was 79.1±9.5 years. Of the 178 patients, 153 patients (86.0%) had only one consultation, 19 patients (10.7%) had two, 4 patients (2.2%) had three, and 2 patients (1.1%) had more than three consultations. The principal diagnoses of the 178 patients hospitalized in the geriatric ward, as shown in Table 1, are as follows: Cerebrovascular disease (n=76), Pulmonary infection (n=45), Parkinson (n=13), Type 2 diabetes mellitus (n=8), Alzheimer’s disease (n=6), Fracture (n=5), Carcinoma (n=4), urinary tract infection (n=4), coronary artery disease (n=4), Digestive tract perforation (n=4), Spinal cord disease (n=3), Bullous Pemphigoid (n=1), and Other diseases (n=5).

Table 1 Principal Diagnoses of 178 Patients Hospitalized in the Geriatric Ward

| Hospitalized Principal Diagnosis | N |
|----------------------------------|----|
| Cerebrovascular Disease | 76 |
| Pulmonary infection | 45 |
| Parkinson | 13 |
| Type 2 diabetes mellitus | 8 |
| Alzheimer's Disease | 6 |
| Fracture | 5 |
| Carcinoma | 4 |
| Urinary tract infection | 4 |
| Coronary heart disease | 4 |
| Digestive tract perforation | 4 |
| Spinal Cord Diseases | 3 |
| Bullous Pemphigoid | 1 |
| Other Diseases | 5 |

Reasons for Dermatology Consultations

In this study, 216 consultations were collected. The reasons for dermatology consultation can be divided into three main categories. The first category was skin diseases that first occurred during the patient's hospitalization, and dermatologists were requested to consult for a definitive diagnosis (n=165, 76.4%). It can be seen in Table 2. The most common diseases were dermatitis/eczema (n=82, 49.7%), infectious skin diseases (n=42, 25.5%), miliaria (n=15, 9.1%), and bullous disease (n=10, 6.1%). The second category was for diseases that could not be clearly diagnosed in the first consultation. The consultation was requested again after completing the relevant auxiliary examinations or adjusting the treatment plan (n=40, 18.5%), including adjusting the type and dose of medication, for patients who already had a clear diagnosis of the disease (Table 2). The most common condition was bullous pemphigoid (n=16, 40%), followed by dermatitis/eczema (n=14, 35%). The third category was to assess the patient's pre-existing skin condition before this hospitalization (n=11, 5.1%), ie, the dermatologist was asked to assist in evaluating the suitability or safety of the patient's current treatment regimen for continued treatment of the skin condition (Table 2). Dermatologists were asked to evaluate previous diseases and to guide therapy, the most common of which was dermatitis/eczema (n=4, 36.4%), followed by bullous pemphigoid and drug eruption.

Whether the Diseases Can Be Diagnosed in the First Consultation in 165 Patients

In 165 patients with newly developed skin disease, 131 (79.4%) patients could be definitively diagnosed using the current patient's clinical presentation and ancillary tests, and 34 (20.6%) patients could not be definitively diagnosed at the first consultation. The following auxiliary tests are required: scabies microscopy (n=14), fungal immunofluorescence test (n=9), blood test (n=5), pathology (n=4), ultrasonography (n=1), and secretion culture (n=1). The treatment regimen of these 34 patients was empirical medication with anti-scabies medication, antifungal medication, etc., after which the medication was further adjusted according to the results of the auxiliary examinations.

Table 2 216 Diagnoses of Dermatology Consultation for Geriatrics Inpatients

| First Category (n=165) | | Second Category (n=40) | | Third Category (n=11) | |
|--|-----------|-------------------------------------|-----------|-------------------------------------|----------|
| Diagnosis | n | Diagnosis | n | Diagnosis | n |
| Dermatitis/eczema | 82 | Bullous pemphigoid | 16 | Bullous pemphigoid | 2 |
| Contact dermatitis | 5 | Dermatitis/eczema | 14 | Dermatitis/eczema | 4 |
| Prurigo nodularis | 28 | Eosinophilic dermatitis | 3 | Eosinophilic dermatitis | 1 |
| Eosinophilic dermatitis | 2 | Non-specific dermatitis or eczema | 11 | Non-specific dermatitis or eczema | 3 |
| Non-specific dermatitis or eczema | 47 | Drug eruption | 2 | Drug eruption | 2 |
| Infectious skin disorders | 42 | Systemic lupus erythematosus | 1 | Systemic lupus erythematosus | 1 |
| Mycoses | 12 | Mycoses | 2 | Psoriasis | 1 |
| Bacterial infections | 7 | Psoriasis | 1 | Infectious skin disorders | 1 |
| Scabies | 9 | Scabies | 2 | | |
| Herpes simplex | 3 | Herpes zoster | 2 | | |
| Herpes zoster | 10 | | | | |
| Molluscum contagiosum | 1 | | | | |
| Miliaria | 15 | | | | |
| Bullous disease | 10 | | | | |
| Bullous pemphigoid | 8 | | | | |
| Malnourished blisters | 1 | | | | |
| Frictional bullae | 1 | | | | |
| Drug eruption | 6 | | | | |
| Urticaria | 2 | | | | |
| Reactive perforating collagenosis | 1 | | | | |
| Eruptive pseudo angiomas | 1 | | | | |
| Non-specific or descriptive diagnosis | 6 | | | | |

Notes: First category: newly occurred cutaneous diseases during hospitalization. Second category: skin diseases that require follow-up and adjustment of treatment plans. Third category: skin diseases exist before admission to the hospital requiring assessment and development of a treatment plan.

Types of Diseases Requiring More Than Two Consultations

In this study, 25 of the 178 patients required more than one consultation. 6 patients with ≥ 3 consultations among which 3 bullous pemphigoid patients requested 9, 4, and 3 consultations respectively, with the reason for multiple consultations being primarily to adjust drug dosage based on changes in the patient's lesions. The fourth patient with eosinophilic dermatitis requested a total of three consultations for adjustment of therapeutic agents. The fifth patient was followed up twice by the doctor because the diagnosis of scabies was unclear. The last patient with non-specific dermatitis or eczema requested three consultations due to poor results with medication.

Discussion

As we all know, the number of aging people is increasing worldwide,¹¹ including in Asian countries. Among the 178 patients in this study, the average age is 79 years old. Patients hospitalized in the Department of Geriatrics often have a combination of diseases, such as diabetes mellitus, cerebral infarction, coronary artery disease, and hypertension,¹² which are more complex and lead to longer hospitalization, in addition, the decline in the skin barrier function of the elderly that makes them more susceptible to skin diseases.¹ Therefore, dermatology consultation plays a significant role in the diagnosis and management of skin diseases in patients hospitalized in the Department of Geriatrics.

Of the 178 patients, 153 (86.0%) required only one consultation, indicating that most skin diseases could be diagnosed at the first consultation. In addition, we also analyzed the reasons for 216 consultations. Through this study, it was found that the most common reason ($n=165$, 76.4%) for dermatology consultations was the diagnosis and treatment of new skin conditions that had developed during patients' hospitalization in the geriatrics department. Dermatitis-eczema was the most common type of skin disease, accounting for 49.7%, followed by infectious diseases of the skin, with a percentage of 25.5%. Of the 165 consultations, dermatologic diseases could be definitively diagnosed in 131 (79.4%) cases by patients' clinical manifestations, suggesting that most diseases in dermatology can be diagnosed through first impressions. Nevertheless, some patients whose disease could not be diagnosed at the first consultation, and other ancillary tests needed to be completed to make the diagnosis ($n=34$, 20.6%). The results showed that 14 out of 34 cases needed to examine scabies microscopy, and 9 cases the examination of fungal microscopy, which suggested that geriatricians should raise awareness of scabies and fungal infections, by learning or mastering the typical manifestations of the two types of diseases in their patients. More importantly, they could conduct relevant examinations before the dermatology consultation, reducing the time doctors and patients have to wait for the results of auxiliary examinations and reducing the number of unnecessary consultations, thus improving the efficiency of the consultation. To summarize the reasons for geriatric dermatology consultation helps to find out the high frequency of diseases occurring in elderly patients, to strengthen the geriatrician's learning and understanding of the common skin diseases that elderly people are prone to suffer from, and then keenly find out the early manifestations of patient's diseases, give patients a certain amount of timely treatment to slow down the progression of the disease, and also to reduce the number of consultations to a certain extent. The reason for 40 (18.5%) of the 216 consultations was to follow up on dermatologic conditions that arose after admission to the hospital and to adjust treatment plans. Finally, 5.1% of total consultations were to evaluate diseases that existed before admission, such as systemic lupus erythematosus and psoriasis, which are characterized by a long history of disease and difficulty in complete curation, and which require the development of a comprehensive treatment plan based on a full understanding of the patient's medical history and medications.

This study also found that up to 25 (14.0%) of patients requested dermatology consultations ≥ 2 times, with 6 patients requesting more than 2 consultations. The most common reason for follow-up in the six patients was bullous pemphigoid, and the high number of follow-ups suggested that patients with autoimmune bullous diseases often need a long-time treatment course, including monitored skin condition and adjusted medicine. In addition, this study suggests that geriatricians should be strengthened to learn more about chronic and intractable skin diseases such as bullous pemphigoid and psoriasis, to master these diseases and then monitor the patient's entire physical state, to avoid aggravating the main causes of hospitalization, and at the same time, to provide patients with health information to alleviate the nervousness and anxiety.

As can be seen from the results, 14% of patients require greater than 1 consultation. Medical resources are valuable. Dermatology, as a highly intuitive discipline, is mainly diagnosed by observing the morphology of the patient's lesions and combining it with the patient's conscious symptoms, and the implementation of remote consultation has certain advantages.¹³ A study of the application of teleconsultation for allergic diseases demonstrated that electronic consultations were completed in less time than on-site consultations and had shorter turnaround times.¹⁴ Teleconsultation is characterized by low time cost and high efficiency.¹⁵ In most cases, dermatologists give diagnoses and treatment plans according to the patient's intuitive clinical manifestations.¹⁶ A study showed that telemedicine dermatologists performed comparably to face-to-face dermatologists in diagnosing and managing hospitalized patients with skin conditions.¹⁷ As mentioned above, some patients require multiple consultations in a single hospitalization. Additionally, it can be concluded that the main reasons for the need for multiple consultations with a dermatologist during a hospitalization cycle are the incomplete auxiliary examinations in the first consultation or the need to adjust the treatment plan due to changes in the condition during the treatment. In the first face-to-face consultation, the doctor conducts a detailed physical examination and questioning of the patient and has a detailed understanding of the patient's condition. For the subsequent follow-up and medication adjustment of such patients, teleconsultation has the advantage of great time and cost savings.

However, there are some limitations to this study, the reviewed medical records are limited, and data from a larger sample is needed to support the results. Designing clinical trials to assess diagnostic accuracy, efficiency, and patient satisfaction in both face-to-face and teleconsultation groups for geriatrics consultations is also an issue that needs to be resolved in the future.

Conclusion

The most common reasons for dermatology consultations among geriatric medicine inpatients are dermatitis/eczema and infectious diseases, the majority of which can be diagnosed during a single consultation. By statistically counting the reasons for dermatological consultation in the geriatrics department, understanding the common dermatological disorders in elderly patients, and summarizing the types of the common disorders in the patients, this study will help geriatricians to better understand and manage skin disorders in their inpatients, and at the same time, help dermatologists to diagnose and treat the patients with skin diseases more efficiently.

Ethical Approval

The study has been performed by the ethical standards laid down in the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The study was approved by the Ethics Committee of the Second Hospital of Shandong University (Ethics Registration No. KYLL-2023LW075). The review committee relaxed the requirement for written informed consent because the study was retrospective and privacy data were removed for all patients.

Disclosure

The authors report no conflicts of interest in this work.

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