Recognition of dermatological conditions by junior doctors on general medical wards

ABSTRACT Although we know something about the prevalence of various dermatological conditions in the community, virtually nothing is known about the prevalence and type of skin conditions affecting general medical patients in hospital. This has important implications for both undergraduate training and the continuing education of junior doctors about common skin disorders. In this study we examine the prevalence of skin conditions in 100 in-patients on four general medical wards, and assess the awareness and diagnostic accuracy of junior doctors encountering common dermatological conditions in their patients. Forty-six patients had one or more skin conditions, excluding seborrheic warts, skin tags, benign pigmented naevi and Campbell De Morgan spots. The 16 junior doctors correctly diagnosed 64% of common skin conditions that should have been covered in the undergraduate curriculum but detected only 43% of the two malignant skin lesions (basal cell carcinomas) identified in the study. The presence of skin conditions was rarely recorded in the notes, even when the condition was potentially relevant to the general medical condition of the patient. This study highlights the need for greater awareness of skin disease amongst junior doctors in order to avoid unnecessary patient morbidity.

Skin conditions affect between one-quarter and one-third of the population at any one time. Dermatological disease is often a manifestation of underlying systemic disease, and some skin diseases, such as malignant melanoma, are life-threatening if not recognised at an early stage. In a previous study of 591 hospitalised patients referred for dermatological advice, dermatological opinion resulted in a changed diagnosis and treatment in over 60% of cases.

The time spent in dermatology by medical students in European medical schools is often limited and unless they continue to pay attention to dermatological diseases in everyday clinical practice even this knowledge will quickly wane. To find out what experience of dermatological conditions junior doctors can obtain during their medical training we assessed the prevalence of dermatological conditions in patients on four acute medical wards in a teaching hospital. We then assessed the ability of junior medical staff to diagnose the common skin conditions we had identified in their patients.

Methods

Four general medical wards in the University Hospital, Queen's Medical Centre, Nottingham were included in the study. All four wards admitted a wide range of acute general medical patients; the consultants on three of the wards had special interests in cardiology, respiratory medicine and diabetes respectively.

All patients able to give written consent to be examined were invited to take part in the study. Before the examination, patients were asked whether they were aware of any current personal skin problems, and whether they had ever seen a dermatologist in the past. The examination consisted of a thorough inspection of the skin, nails, scalp and oral mucous membranes. All examinations were carried out by a dermatology research fellow (CC) and any ambiguous skin conditions were reviewed by a consultant dermatologist (HW). Patients were questioned as to the presence of genital lesions, and the genitilia were only examined if patients indicated a problem in this area. All diagnoses were made clinically without recourse to histopathological or microbiological investigations unless a serious condition was discovered.

Simple common skin conditions such as freckles, skin tags, benign pigmented naevi and Campbell De Morgan spots were not recorded. However, seborrheic warts were recorded, as these are commonly misdiagnosed and referred to pigmented lesion clinics for advice on management. All other benign and malignant skin conditions were recorded, whether or not dermatological referral would affect the patient's management.

After examining all the patients on each ward, and without prior warning, we asked the junior doctors on that ward what they knew about those of their patients' skin lesions that had been included in the core teaching of the undergraduate curriculum. In addition, nursing staff on the ward were asked for their opinion of any malignant lesions identified.

Ethical approval and permission from all the medical consultants involved in the care of the patients was obtained prior to the study.

Results

In total 100 patients were examined; 66 had one or more of the skin conditions listed in Table 1. Seborrhoeic warts are extremely common amongst general medical patients, particularly elderly patients, but were of concern to only three of the 33 patients with this condition. When seborrhoeic warts were excluded, the remaining skin conditions
Table 1. Prevalence of dermatological conditions on four general medical wards (total number of patients = 100).

| Condition                                      | Prevalence (%) |
|------------------------------------------------|----------------|
| Seborrhoic warts                              | 33             |
| Solar keratoses                               | 5              |
| Fungal nail infection                         | 4              |
| Leg ulcer – diabetic                          | 3              |
| Viral warts                                   | 3              |
| Psoriasis                                     | 3              |
| Superficial candida infection                  | 3              |
| Epidermoid cysts                              | 3              |
| Basal cell carcinoma                          | 2              |
| Acne                                          | 2              |
| Vitiligo                                      | 2              |
| Dermatofibroma                                | 2              |
| Onychogryphosis                               | 2              |
| Darier’s disease                              | 1              |
| Lichen sclerosus et atrophicus                | 1              |
| Leg ulcer – peripheral vascular disease        | 1              |
| Drug eruption – phentoin sensitivity          | 1              |
| Pseudoacanthosis nigricans                   | 1              |
| Lipoma                                        | 1              |
| Xanthelasma                                   | 1              |
| Herpes infection of face                      | 1              |
| Habit tic nail dystrophy                      | 1              |
| Neurofibromas                                 | 1              |
| Lichen simplex                                | 1              |
| Seborrhoic dermatitis                         | 1              |
| Endogenous hand eczema                        | 1              |
| Allergic contact dermatitis – nickel          | 1              |
| Number of patients with 1 skin condition      | 51             |
| Number of patients with 2 skin conditions     | 13             |
| Number of patients with 3 or more skin conditions | 2            |
| Total number of patients with 1 or more skin conditions | 66 |
| Total number of patients with 1 or more skin conditions excluding seborrhoic warts | 46 |

mentioned were identified in 46 patients. Many of the elderly patients examined were found to have general thickening and discolouration of all their toenails. Fungal nail infection was diagnosed clinically only when classical asymmetrical changes of distal discoulouration, crumbling and sub-ungual hyperkeratosis were seen.

Twenty patients were aware of a personal skin problem at the time of the examination. All of them had one or more of the skin conditions listed in Table 1; in three patients the skin problem was a seborrhoic wart. Of these 20 patients only eight were aware of the correct diagnosis of their skin problem.

Of the 15 patients who had seen a dermatologist in the past, eight had a current skin problem.

The diagnostic accuracy of senior house officers for lesions covered in the undergraduate curriculum was slightly better (65%) than that of the junior house officers (63%), but the difference was not statistically significant. The various incorrect diagnoses given are shown in Table 2. Only two of the 16 doctors questioned correctly diagnosed all of the skin conditions shown to them. In all cases where doctors had no idea as to the diagnosis, they felt that the lesions were benign.

Both senior and junior house officers were poor at diagnosing malignant and pigmented lesions. Two malignant lesions (basal cell carcinomas) were identified, both of which were located on the faces of the patients concerned. Only three out of seven doctors questioned were able to diagnose these lesions correctly when pointed out to them.

**Discussion**

This study demonstrates the wide diversity of dermatological conditions amongst general medical patients in a hospital setting. The relatively high prevalence of skin conditions, coupled with the high turnover of patients in most general medical wards, means that junior doctors are likely to be exposed to a constant array of dermatological problems during their everyday clinical practice. Although this continuing exposure is potentially of educational benefit, such exposure needs to be coupled with sufficient dermatology undergraduate training and continuing postgraduate training to enable doctors to recognise and manage the more common skin conditions they are likely to encounter.

Many of the dermatological conditions identified in this study had not been previously diagnosed. Two basal cell
carcinomas were identified, both on the face but neither had been detected by doctors caring for the patients. One of these lesions needed Moh's microsurgery in view of its size and location. Four patients had classical onychomycosis that had been left undiagnosed for several months, and none of the patients with superficial candida infections was receiving treatment for their condition. Darier's disease was diagnosed in one patient, who also showed classical nail and skin changes despite a negative family history. The patient was unaware of the diagnosis or the fact that topical treatment could help her condition. The patient with genital lichen sclerosus et atrophicus had been diagnosed histologically 10 years earlier but had been too embarrassed to see a doctor, despite much discomfort, and had gone without treatment or regular surveillance for squamous carcinoma.

The overall diagnostic accuracy of senior house officers for common dermatological conditions was marginally better than that of the junior house officers, although many cases were wrongly diagnosed by both groups. Only three out of seven doctors questioned were able to identify a basal cell carcinoma even when the lesion was specifically pointed out to them. Two different doctors misdiagnosed a seborrhoeic wart as a melanoma and a basal cell carcinoma respectively, and a dermatofibroma was mistaken for a basal cell carcinoma. These results for diagnostic accuracy are similar to those of primary care physicians for recognising common dermatoses45.

With the exception of the patients with leg ulcers, and the case of pseudoanarthrosis nigricans, no mention was made in the clerking of any form of skin disease. This is perhaps because the integumentary system is not included in the standard general medical examination taught to undergraduates. In a patient with widespread vitiligo affecting at least 60% of the skin, no record of the disease had been made in the notes despite the fact that all the doctors were able to diagnose the disease correctly. The link between vitiligo and other autoimmune diseases such as diabetes mellitus, thyroid disease, pernicious anaemia and primary biliary cirrhosis makes it an important clinical feature in any medical clerking.

Many patients admitted to the general medical wards are acutely ill and doctors are under pressure to treat their acute and sometimes life-threatening medical problems with as little delay as possible. Dermatological conditions are often the least of a patient's problems whilst in hospital at such a time. However, the average length of time spent by patients on the wards included in this study was four to five days. During this time patients can expect to be frequently reviewed and examined by their doctors, and many have daily close contact with nursing staff during washing and dressing. One could therefore expect most symptomatic and malignant skin conditions at least to be noticed and recorded during this period.

It is clearly desirable that all doctors should be able to identify malignant skin lesions, especially as basal cell carcinomas are the commonest of all cancers. Although the consequences of a missed basal cell carcinoma are unlikely to be life-threatening, a delay in diagnosis will often mean an increased use of health service resources and greater patient morbidity. No malignant melanomas were detected during this study but the consequences of leaving such a tumour undetected are potentially much more serious and cases where malignant melanomas on the face have been missed by doctors have been reported46. False negative diagnoses for malignant lesions are obviously much more worrying than false positive diagnoses. Most dermatologists would accept that benign lesions will occasionally be mistaken for malignant lesions by cautious doctors, and would not wish to discourage referral whenever diagnostic uncertainty exists. Although dermatological training at undergraduate level is often limited, we suggest that greater emphasis should be given to the diagnosis of malignant lesions. As nurses are likely to have closer and more frequent contact with patients on a daily basis, their role in the possible detection of malignant skin lesions needs to be addressed. None of the nurses questioned in this study was aware of the diagnosis of the basal cell carcinomas identified in their patients.

In conclusion, it appears that junior doctors all too frequently 'look through the skin' and miss important dermatological signs that may be relevant to the patient's medical condition. Important skin conditions are frequently not detected or recorded in patients' notes, despite the fact that doctors may be able to diagnose the lesions when they are pointed out to them. Skin disease is a common cause of treatable morbidity that can occasionally be life-threatening and may represent a manifestation of underlying systemic disease. It is time for medical undergraduate and postgraduate curricula to address the glaring gaps in knowledge and clinical recording of visible skin lesions.

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