

is that posts for preregistration house officers are essentially for education not for service, though the best education may well be obtained by service work. The preregistration year is meant to round off the undergraduate years. During the undergraduate years the emphasis is on acquiring knowledge, and there is little opportunity to practise skills. The year spent in preregistration posts is meant to help to fill in the deficit, so that the new doctor may use his knowledge and learn the skills of communicating with patients as well as more technical skills.

Virtually no progress has been made in organising laboratory experience in the preregistration year. Entrenched attitudes may be responsible for this. As regards general practice, there have been a few experiments that have so far not worked very well. The reasons seem to be that the idea is new, that the people who ultimately wish to do general practice will get the experience they need later, and that few of those intending to do hospital medicine later wish to sample general practice at this stage of their careers. Finally, there is the problem that a graduate who has provisional registration is not allowed to prescribe medicines without someone who is fully registered countersigning the prescription. Thus, when a preregistration house officer has seen a patient in the surgery he nearly always has to ask his senior to go over the case so that a prescription may be written, signed, and countersigned. The house officer therefore carries almost no

responsibility, and his senior has to check everything he does. This is not satisfactory on either side. It is hoped that the General Medical Council might be persuaded to change its rules in these special circumstances to make general practice a real option in the preregistration year.

The preregistration year is under the authority of the university, and thus should be an extension of the undergraduate years and primarily educational. Nevertheless, the education is derived largely through service work, which is considered to be the way to learn the craft of medicine as distinct from the academic knowledge. The preregistration year is a time of doing rather than one of theoretical acquisition. The university naturally delegates overseeing the preregistration year to the dean of the faculty of medicine. His authority may be handed on to someone else, usually the postgraduate dean. Since this is a special activity the faculty of medicine usually has a small preregistration house officer committee to oversee the preregistration period, trying to make sure that the newly qualified doctors obtain the educational experiences asked for by the General Medical Council. In practice, the work is done by the dean or postgraduate dean and their officers and is checked and advised on by the committee, to which the dean reports.

In the next article I shall describe how the preregistration posts are evaluated.

Lesson of the Week

Outbreak of chickenpox from a patient with immunosuppressed herpes zoster in hospital

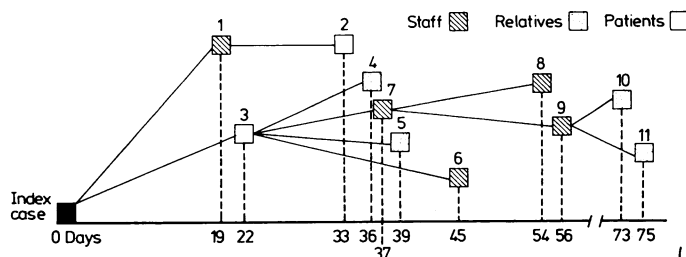
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There is a tendency to forget that herpes zoster is infectious. Immunosuppressed patients may be particularly liable to transmit the virus and may cause serious outbreaks of chickenpox in other patients and staff. We describe such an episode in a combined haematology and gastroenterology unit, which resulted in the closure of a ward and contributed to the death of one patient.

The outbreak (figure)

All individuals affected by this outbreak of herpes zoster infection were white British subjects. A 59-year-old man with advanced systemic sclerosis (the index case) was admitted to hospital with lobar pneumonia. He was taking prednisolone and azathioprine. Shortly after admission he developed typical herpes zoster lesions in the 4th and 5th thoracic segments. The lesions resolved spontaneously, and he was not isolated. A 19-year-old male nurse (case 1), who nursed the index case,

Immunosuppressed patients who develop herpes zoster should be nursed in isolation



Eleven people were infected with herpes zoster from the index case over 75 days.

developed chickenpox 19 days from the onset of the original herpes zoster rash. He had also nursed a 75-year-old patient with lymphoma who was receiving treatment with cytotoxic drugs. This patient developed clinical chickenpox (case 2) 33 days after the index case. He was transferred to the infectious diseases unit and died three days later from his primary illness.

A 17-year-old woman patient (case 3) who had chronic active hepatitis and was receiving prednisolone and azathioprine

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developed an extensive vesicular rash 22 days after the appearance of the herpes zoster rash in the index case. This was confirmed as chickenpox by electron microscopy. Her condition deteriorated, with the serum aspartate transferase concentration rising from 97 to 210 U/l (normal 13-43 U/l) and the serum bilirubin concentration from 36 to 141 $\mu\text{mol/l}$ (2.1-8.2 mg/100 ml) (normal <22 $\mu\text{mol/l}$; <1.28 mg/100 ml). Despite giving her two units of plasma, with high titre of antibodies to varicella zoster, she never fully recovered from this episode and died a few weeks later. Her father and sister (aged 57 and 15 respectively) developed clinical chickenpox 36 and 39 days after the index case (cases 4 and 5). A 32-year-old female nurse (case 6) developed clinical chickenpox after 45 days; she had been nursing the patient in case 3.

A 25-year-old male senior house officer in the unit (case 7) developed chickenpox after 37 days, confirmed by electron microscopy. His rash became extensive and his serum aspartate transferase concentration rose sharply. He was nursed in the infectious diseases unit where two female nurses, aged 20 and 30, developed clinical chickenpox 54 and 56 days after the original herpes zoster lesion (cases 8 and 9). The boyfriend (aged 22) and nephew (aged 7) of case 9 developed clinical chickenpox after 73 and 75 days respectively (cases 10 and 11).

Procedures for controlling infection

After chickenpox developed in the first patient contact (case 3) measures were taken to control the infection.

Patients—The patient in case 3 was isolated in a single room and barrier-nursed. Patients on the two affected wards who were considered fit enough for discharge and who had no documented history of chickenpox were sent home. Patients who were particularly at risk, either because of their condition or because they were receiving treatment with immunosuppressive drugs, were protected with zoster immunoglobulin. There were nine such patients and none developed typical chickenpox. Three, however (A, B, and C in the table), had initial varicella zoster titres of specific IgG measured by immunofluorescence of 16, 64, and 64, all of which had risen to 512 two months later, indicating possible subclinical reactivation or reinfection in patients who were immunologically disadvantaged (personal communication, J E Cradock-Watson, Regional Public Health Laboratories, Manchester). One patient (D, table) on high-dose

Varicella zoster titres in four of the patients who received zoster immunoglobulin (ZIG)

Patients	Varicella zoster titre	
	Before ZIG	Two months after ZIG
A	16	512
B	64	512
C	64	512
D	8192	512

steroids for inflammatory bowel disease had an initial varicella zoster antibody titre of 8192, which dropped to 512 two months later. The initial titre coincided with a pyrexia and non-specific rash, which may in retrospect have been an atypical case of chickenpox.

Staff—There were 68 medical, nursing, and domestic staff in the wards concerned. All had their immunity assessed by the complement fixation method. Those with negative titres for varicella zoster antibody had their serum checked by the more sensitive immunofluorescent technique. Only 24 (35.5%) of the staff were immune. Non-immune staff were relieved of duty for three weeks.

Wards—The remaining patients were all housed in one of the two wards concerned. Further admissions were limited to

patients who had a clear past history of chickenpox. The second ward was closed, disinfected, and reopened with immune staff and patients who were known to be immune or to have received zoster immunoglobulin.

Comment

Nursing the index case of herpes zoster in an open ward resulted directly or indirectly in 11 cases of clinical chickenpox: five staff, two patients, and four relatives. The outbreak resulted in much disruption of medical care and contributed to the death of one patient (case 3). In retrospect it seems likely that the outbreak could have been avoided by isolating the patient with herpes zoster and giving zoster immunoglobulin to susceptible patients.

It is noteworthy that so many of the staff were infected. In a previously reported outbreak¹ all the staff were of foreign extraction. It was argued that their immunity might be lower than that of the British adults. All the staff in this outbreak were of British origin and only a third were immune, whereas it has previously been thought that about 60% of the adult population of Britain are immune to chickenpox.² That this might not be an isolated occurrence is suggested by a report of an outbreak in British hospital staff,³ though the overall level of immunity was not reported in that outbreak. In two other recorded outbreaks of this nature the index case of herpes zoster was immunosuppressed. It seems likely that the dose of virus excreted in such patients is much higher than usual.⁴ This almost certainly results in a high infectivity. The risks are such that we believe that immunosuppressed patients who develop herpes zoster should be nursed in isolation, especially when other immunosuppressed patients are in the ward.

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References

- 1 Anonymous. Chickenpox from herpes zoster. *Br Med J* 1974;ii:568.
- 2 Tomlinson AH, MacCallum FO. The incidence of complement-fixing antibody to varicella-zoster virus in hospital patients and blood donors. *J Hyg Camb* 1970;68:411.
- 3 Wilkinson PJ, Verrier Jones J, Reeves DS, Asplin CM. Chickenpox from herpes zoster. *Br Med J* 1974;iii:686.
- 4 Dolin R. Herpes zoster-varicella infections in immunosuppressed patients. *Ann Intern Med* 1978;89:373-88.

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What is the origin of the medical symbol of the rod and the serpents, the relevant history of this sign, and why, when, and by whom was it chosen to represent the medical profession?

The serpent of healing is associated with the recorded history of medicine. Twin serpents spiralled round a staff are seen clearly on a Sumerian libation vase¹ dedicated to a master physician and dated 2350 BC. In Minoan Crete (2000-1400 BC) the sacred symbol of the snake (a creature that annually sloughed and regenerated its skin) represented the yearly renewal of youth and the perpetual promise of immortality. The feminine-based culture of the Minoans, however, was overcome by the male-dominated life style of the Greeks. Their god of healing, Aesculapius, was translated to the heavens as the constellation "serpent-holder." From this tradition, serpents twined round a staff have remained the logo of the art of healing. They can be found on various official badges, including those of the RAMC and the BMA.—BRIAN LIVESLEY, medical historian, London.

¹ Stubbs SGB, Bligh EW. *Sixty centuries of health and physick*. London: Sampson Low, Marston & Co, 1931:57 (plate XVIII).