

flush. Their concentration is raised in menopausal women; and oral oestrogens both alleviate menopausal flushing and induce a fall in gonadotrophin concentrations. The observation of a pulse of luteinising hormone between seven and 13 minutes after the onset of symptoms has also been cited as evidence of the part played by gonadotrophins in the response.^{7 8} A luteinising hormone pulse is not invariable after the flush, however, and administration of luteinising hormone (or of gonadotrophin releasing hormone which releases luteinising hormone) does not evoke a hot flush even in susceptible subjects.⁶ Furthermore, there is no correlation between the severity of hot flushes and gonadotrophin concentrations in individual women or between the alleviation of symptoms by oestrogens and the extent of the reduction they induce in gonadotrophin concentrations. Indeed, a dissociation between gonadotrophin concentrations and hot flushes has been shown in different circumstances. Thus flushes continued unabated in menopausal women⁹ and were even induced in premenopausal women¹⁰ after administration of a gonadotrophin releasing hormone agonist, though gonadotrophin concentrations fell and luteinising hormone pulses were abolished. Conversely treatment with vaginal oestriol alleviated hot flushes but gonadotrophin concentrations remained raised (unpublished observations).

Treatment, then, remains essentially empirical. Oestrogens—natural or synthetic—reduce the severity and frequency of attacks in a high proportion of women. Their mode of action is unknown. The addition of a progestogen, given for part of the month to ensure regular withdrawal bleeding and so limit endometrial hyperplasia, may be associated with unacceptable side effects. Women intolerant of oestrogens or in whom they are contraindicated may be helped by compounds which influence vascular responsiveness. Clonidine—an alpha agonist—may reduce the severity of the hot flushes.¹¹ A beta blocker such as propranolol may also help and may be given in conjunction with the clonidine.

Why some women do not flush after the menopause while others may suffer for years is not understood. That particularly severe and intense flushes occur after bilateral oophorectomy or when oestrogen treatment is abruptly discontinued suggests that a sudden change in the hormonal balance may trigger a hypothalamic discharge. It is therefore of interest that, though there is normally no parallel in men to the considerable reduction in oestrogens occurring in women with the menopause, attacks of flushing have been reported in men after an abrupt fall in androgens, as after orchidectomy^{12 13} or after administration of a gonadotrophin releasing hormone agonist.¹⁴ Measurement of vascular responses during such an attack in a man after orchidectomy showed a striking similarity to those recorded during menopausal flushing in women p 262.

In both men and women, therefore, a reduction in sex steroids consequent on gonadal failure may herald the onset of the vasomotor dysfunction characterised by the climacteric hot flush. Is the signal for the initiation of these flushes a fall in the dominant sex steroid for the gonad in question? Or might it be lack of another, as yet unidentified, compound common to both ovary and testis and in whose absence activity of the hypothalamic centres regulating temperature is disturbed?

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Manpower problems

Rheumatology¹ has now joined gastroenterology,² cardiology,³ and chest medicine⁴ in the growing list of medical specialties whose senior registrars are having difficulty in obtaining consultant appointments. Five or more years ago anyone who specialised in rheumatology could become a consultant sooner than his or her colleagues in most other medical disciplines; even more recently there were unfilled posts in chest disease. If the trend continues, there are likely to be senior registrars queueing for vacancies even in the traditionally unpopular specialties such as genitourinary medicine and geriatrics. General (internal) medicine, surgery, and obstetrics and gynaecology have long been oversubscribed; now psychiatry and anaesthetics, whose capacity to absorb junior staff seemed limitless, are beginning to get uncomfortably full. Only radiology and some branches of pathology (though not haematology) still appear to have spare capacity.

The Short committee⁵ did a valuable service in highlighting the shortcomings of the career structure, but its proposed doubling of the number of consultants and reducing supporting junior staff was unrealistic in a period of recession—and was generally unacceptable to the profession. What is more, it did not really address the complex question of why deployment of medical manpower in the hospital service is in such a mess. For example, the National Health Service has been plagued by the problem of time expired senior registrars—those who have completed the customary four years of training—since its inception, and not, as the committee suggested, for the last few years. One of the initiatives in setting up the British Medical Association's Hospital Junior Staff Committee in the 1950s came from registrars who were dissatisfied with their prospects. In those days the discontented and overlooked senior registrar could sidestep into other specialties, including general practice, or seek greener pastures abroad; nevertheless, there are senior consultants in Britain today who once suffered

the indignity of being time expired. The problem improved somewhat in the next two decades owing to an expansion in consultant posts, but a disproportionate increase in junior staff has contributed to the present serious imbalance. In the last parliament Geoffrey Finsberg told the house that only 27 senior registrars had not yet found consultant posts; the true figure is probably 10 times as great.

A state of affairs which has persisted for at least 30 years is unlikely to be changed for the better overnight. Planners will need to consider sensitive issues such as reducing the intake of medical students, balancing the numbers of general practitioners (and their list size) and hospital specialists, and establishing a suitable retirement age for general practitioners, as well as the option of early retirement in the more stressful specialties such as emergency surgery and medicine in district hospitals. Better ways of predicting the requirements of different specialties must be devised to prevent the development of the sort of problems that have led to the impasse in rheumatology, where a call some years ago for more specialists cannot now be implemented.

Those concerned with medical education must devise incentives to divert students and young graduates from popular and glamorous specialties into those, such as preventive and community medicine, whose current image is so unappealing. The alternative might have to be an embargo on entering particular specialties. At present there are 50 to 100 applications for each senior house officer post in medicine and surgery. It may take several months to obtain a place (thus no doubt contributing to medical unemployment), and yet the overall number of senior house officer posts in Britain is said to be more than sufficient. This chaotic state underlines the urgent need for the sort of computer technology envisaged by J C C Smith in his widely circulated paper; with such a scheme it would surely be possible to base a national matching plan for senior house officers similar to that used for residency programmes in the United States. Our own training has also become increasingly narrow and inflexible, and the suggestion by the Joint Consultants Committee that the first two or three years after registration should be spent in truly general training for everyone is to be welcomed.

Given that consultant expansion is likely to remain sluggish and that many things have to be done to correct the career imbalance, the priority should surely be to accommodate senior registrars who have completed their training. At present the advice from the Department of Health and Social Security is that contracts should not be terminated—thus contributing to the bottleneck lower down—provided the holders apply for all suitable consultant posts. Since most do eventually obtain appointments it would surely be reasonable at least for them to be automatically shortlisted. Time expired posts and those in oversubscribed specialties which become vacant should be scrutinised by regional senior registrar committees rather than being automatically readvertised. Now that regions hold most senior registrar contracts a realistic ratio—roughly one to six instead of the present one to two in some of the popular specialties—could be planned between senior registrars and consultants.

If such a balance is to be achieved one problem that will have to be attacked is the profusion of posts which carry honorary senior registrar status. These are broadly of two kinds: established lecturer posts in medical schools which have received educational approval from the royal colleges and faculties and an unknown number of research fellowships, funded mainly by bodies outside the NHS, which are given senior registrar status so that the holder can work with

patients. The latter are not always subject to formal review for educational purposes. True, some occupants of these posts—for example, those from abroad—will not be competing for consultant posts and others will go on to approved senior registrar appointments, but some research fellows do apply for consultant posts. Any substantial reduction in numbers for the sake of the NHS could have a disastrous effect on basic and clinical research, and ways must be found of counting and designating such posts so that they are included in manpower figures.

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Umbilical vein for bypass operations

Despite the vast numbers of operations on blood vessels performed each year surgeons have yet to find an ideal vascular prosthesis. Virtually any replacement vessel will remain patent when it replaces a large artery with a high flow rate,¹ but many patients with vascular disease who face the prospect of amputation require a bypass from the common femoral artery to the distal popliteal artery or to one of the vessels distal to it. Even autogenous vein does not perform very well in these circumstances. The mean patency rate of saphenous vein implanted from the common femoral artery to the arteries below the popliteal artery is only 56% after 12 months.² These are depressing figures, but they show that the surgeon is able to save the limb in half his patients with this unfavourable pattern of disease. These patients have such a limited life expectancy that many will not lose their limb within their lifetime.

Many patients needing vascular surgery do not have a suitable saphenous vein, or it may have been used previously for a variety of purposes. In 1975 Dardik and his colleagues in New Jersey developed, in association with Meadox Medicals Inc, a graft consisting of human umbilical vein obtained from obstetric units. The vein is treated by a complex series of processing steps, including tanning with glutaraldehyde to reduce its antigenicity. The grafts are then covered with a polyester-Dacron mesh to reduce the possibility of late aneurysm formation and are stored in alcohol. Long prostheses are made by the manufacturers by suturing two umbilical veins end to end.

This modified human umbilical vein graft (biograft) is the most expensive form of vascular prosthesis, costing almost £600, but good early results have fired the enthusiasm of vascular surgeons in a relatively short time. Dardik and his colleagues recently published the results of 552 biografts implanted between 1975 and 1980.³ Of these, 241 have been