Provision of remedial therapists in geriatric medicine

No agreement has been reached about what constitutes a satisfactory norm for the remedial therapy services. In geriatric medicine recommended norms vary from 0.26 to 0.5 trained physiotherapists and from 0.27 to 0.4 trained occupational therapists per thousand population aged 65 and over, with a corresponding number of therapy aides.¹⁻⁴

In the light of the rapid increase in the numbers of very old people we thought it important to assess the present provision of remedial therapists in geriatric departments throughout the United Kingdom.

Methods and results

We received replies to a postal questionnaire on remedial therapist staffing from 213 (76%) of the 280 departments of geriatric medicine, which were responsible for 73% of the elderly (65 years and over) in the United Kingdom.

The table shows the number of remedial therapists in post and the numbers required to reach the lowest recommended norm of 0.25 trained and 0.5 total therapists (trained plus aides) per thousand people aged 65 and over. In each country the average number of therapists is well below these norms: indeed, it would require roughly 890 additional physiotherapists and 1250 occupational therapists to reach them. This would be equivalent to increases of 11% in the number of physiotherapists and of 38% in the number of occupational therapists in post in the National Health Service.

Therapists in geriatric units in the United Kingdom

	England	Wales	Scotland	Northern Ireland
Population ≥65 (× 1000):				
Total population	6997	423	711	187
Study population	4926.8	321.5	639.9	137.6
Study population as % of total population	70	76	90	73
Physiotherapists:				
No trained/1000 population*	0.140	0.153	0.166	0.163
Additional No required to reach 0.25/1000 population*	770	41	60	16
No of unfilled posts	46	7	4	9
Total No in NHS	6832	356	983	264
No of trained physiotherapists + aides/1000 population*	0.237	0.271	0.232	0.348
Additional No of trained physiotherapists + aides required to reach 0.5/1000 population*	1840	97	191	28
Occupational therapists:				
No trained/1000 population*	0.098	0.079	0.113	0.148
Additional No required to reach 0.25/1000 population*	1064	72	97	19
No of unfilled posts	110	13	7	2
Total No in NHS	2718	142	348	151
No of trained occupational therapists + aides/1000 population*	0.215	0.219	0.217	0.320
Additional No of trained occupational therapists + aides required to reach 0.5/1000 population*	1994	119	201	34

NHS = National Health Service.

*1000 people aged 65 and over.

Comment

These figures are too large to be solved simply by the provision of extra finance. Even within the departments studied 66 physiotherapy and 132 occupational therapy posts remained unfilled though funded. The problem is the shortage of therapists. To achieve the minimum recommended norms within the next 10 years another 80-100 physiotherapists and occupational therapists would have to be trained each year to supply geriatric medicine alone. This would require the establishment of new training colleges.

As such increases will not be achieved some other way must be found to meet the rehabilitation needs of the community. The table shows that there is also a shortage of therapy aides, which means that untrained helpers are not being used to compensate for the unfilled posts. It would not be desirable, however, for patient management to be left to untrained staff.

One approach would be for some nurses to take more responsibility for active rehabilitation, though they now receive little training in this. Therapists often complain that their work is "undone" by nursing staff through lack of knowledge and unduly custodial attitudes. In successful units nurses continue the process of rehabilitation throughout the day. That they should receive an appropriate training

in rehabilitation seems reasonable. We propose that a certificate of rehabilitation nursing be established as a postbasic qualification, which would train nurses in all aspects of rehabilitation. We would hope that in wards in which a high degree of rehabilitation is necessary the nursing staff would have this certificate. These nurses would be expected to supervise the basic mobilisation and activities of daily living of the patients, thereby allowing therapists to concentrate on more complex and specialised techniques. Patients would benefit from a better organised and continuous programme of rehabilitation. As all specialties, including community care, have similar staffing problems, the training of the rehabilitation nurse should cover all age groups and specialties.

Therapists are unlikely to consider that nurses can carry out functions requiring skills that have taken the therapists many years of specialist training to acquire, and we would support this view. Our concern is to supplement the work of therapists and provide 24 hour rehabilitation by training some nurses to assist in basic rehabilitation. Therapists and nurses could then use their skills to better effect.

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Pituitary infarction and development of the empty sella syndrome after gastrointestinal haemorrhage

Spontaneous destruction of the pituitary may occur after haemorrhage into the gland (usually into a tumour) as in pituitary apoplexy or by infarction after severe hypotension (usually in an enlarged gland) such as in postpartum haemorrhage or Sheehan's syndrome. We describe a patient with acromegaly who sustained spontaneous infarction of her tumour with resolution of her acromegaly after a massive gastrointestinal haemorrhage. She also developed the empty sella syndrome with intrasellar arachnoid herniation of cerebrospinal fluid.

Case report

A 48 year old woman presented with a history of shortness of breath, lethargy, amenorrhoea of two years' duration, acral enlargement, and a hoarse voice. She had typical physical features of acromegaly and congestive heart failure. Investigations showed a raised basal growth hormone concentration of 70 mU/l, which failed to decrease after administration of 100 g oral glucose. Glucose tolerance was normal. Computed tomography (EMI scanner) showed an enlarged pituitary fossa within which was a high attenuation mass that was enhanced after injection of contrast.

Despite treatment with diuretics she developed worsening right heart failure, obstructive sleep apnoea, and hypoventilation and underwent tracheostomy. Two days before planned transphenoidal hypophysectomy she collapsed after a massive gastrointestinal haemorrhage. Her blood pressure was unrecordable for 15 minutes, and she remained hypotensive with a systolic blood pressure of less than 60 mm Hg for a further hour despite transfusion of 16 units of whole blood. She underwent emergency laparotomy, at which a bleeding duodenal ulcer was found and oversewn.

During her convalescence from this episode her acromegalic features resolved. Repeat investigations 12 weeks after her gastrointestinal bleed showed a basal growth hormone concentration of 6 mU/l, which did not alter after administration of 100 g glucose. Repeat computed tomography (Phillips Tomoscan 310) showed no evidence of pituitary tumour, although there was thinning of the sella floor and arachnoid herniation of cerebrospinal fluid

into the sella. She received hydrocortisone replacement treatment for one year, and this was withdrawn before pituitary function tests were carried out. These showed normal cortisol and prolactin responses to hypoglycaemia induced with insulin (peak cortisol concentration 860 nmol/l (31 µg/100 ml), prolactin concentration 550 mU/l). Basal growth hormone concentration was 6 mU/l, with a subnormal rise to the combination of hypoglycaemia and administration of thyrotrophin releasing hormone (peak growth hormone concentration 9 mU/l). Responses of luteinising hormone and follicle stimulating hormone to luteinising hormone releasing hormone and of thyrotrophin stimulating hormone to thyrotrophin releasing hormone were absent.

Comment

Spontaneous infarction of the pituitary is well described in acromegaly.¹⁻³ In one review all patients had classical pituitary apoplexy except patients with diabetes mellitus, in whom infarction was silent.¹ Another review reported that 42 out of 93 patients found at the time of hypophysectomy to have haemorrhage from pituitary adenomas gave no history of apoplexy.³ Pituitary necrosis in postpartum haemorrhage was reviewed by Sheehan and Davis, who concluded that it resulted from ischaemia due to a fall in arterial blood supply with or without disruption to portal blood flow.⁴ They suggested that there may be special factors in the puerperium that predispose to pituitary necrosis as it is often associated with pre-eclampsia.

The case we report is the first to show infarction of a growth hormone secreting tumour after a prolonged period of hypotension due to haemorrhage. After pituitary apoplexy hormone function may range from being normal to completely absent. We propose that selective infarction of the tumour occurred as shown by the preservation of a normal pituitary-adrenal axis. As growth hormone concentrations were not fully suppressed after an oral glucose load residual tumour may have remained. The patient also developed intrasellar arachnoid herniation of cerebrospinal fluid. Previous reports have shown that this condition may coexist with pituitary tumours or necrosis.^{4,5} This case, documented by sequential computed tomograms, shows the development of the empty sella syndrome after necrosis of a pituitary tumour.

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Factors affecting day to day incidence of stroke in Nottingham

Mortality due to stroke is known to increase in winter and also shows a negative correlation with temperature in all seasons.¹ A time trend association with changing levels of air pollution has also been reported.¹ Published information does not, however, indicate whether this association is due mainly to a change in incidence of stroke or in the proportion of strokes that are fatal. We investigated the effect of meteorological changes on the day by day incidence of stroke in Nottingham in 1983.

Patients, methods, and results

Nottingham City and University hospitals together take all acute medical admissions for the city and surrounding area (catchment population 600 000-800 000). About 15% of patients with stroke are admitted directly to geriatric wards, but these were excluded from our study. We also excluded

(retrospectively) those who were found to have primary subarachnoid haemorrhage or transient ischaemic attacks and those whose neurological signs were caused by space occupying lesions. We did not attempt systematically to distinguish cerebral haemorrhage from infarction. Daily temperature readings were supplied by the Castle Museum, Nottingham, and records of smoke and gaseous pollution by the Nottingham Environmental Health Office.

Altogether 732 cases of stroke were registered over 51 weeks and the dates of onset of symptoms ascertained. A further 129 cases were excluded for the reasons given above. Taking daily total numbers of cases as the dependent variable, significant correlations were found with daily temperatures and levels of sulphur dioxide and smoke ($p < 0.01$) but not with other meteorological variables such as rainfall and hours of sunshine. Multiple regression analysis indicated that temperature had the strongest effect and that the independent contribution of levels of smoke and sulphur dioxide was negligible. Interposing a lag of one day between the dates of temperature reading and onset of stroke strengthened the association. Even so, only 2.4% of the measured variation in numbers of strokes could be explained by the temperature effect (approximate 95% confidence limits 0.3-6.6%).

Temperature may have influenced the chance of being admitted to hospital rather than the incidence of stroke. We therefore reclassified the cases of stroke by date of admission (rather than onset). We also examined for comparison a group of 464 patients admitted during the same period with upper gastrointestinal bleeding. As the table shows, the numbers admitted daily for this condition showed much weaker correlations with temperature than the figures for incidence of stroke.

Correlations with daily temperature readings

Dependent variable	r*	r ²	p value
No of strokes:			
By date of onset	-0.130	0.017	<0.01
By date one day after onset	-0.154	0.024	<0.01
By date of admission	-0.090	0.008	<0.05
No of cases of upper gastrointestinal bleeding:			
By date of admission	-0.065	0.004	>0.1

*Univariate correlation coefficient.

Comment

These data suggest a significant but small increase in incidence of stroke on cold days. Displacement of dates of onset by one day strengthens the correlation, but displacement by more than a week causes it to disappear; the effect thus seems to be a short term one. Substitution of dates of onset by dates of admission makes the association much weaker so we are confident that we have not simply measured changes in the proportion of cases admitted to hospital. Furthermore, no significant temperature effect could be shown on daily admissions for acute upper gastrointestinal bleeding, although longer term associations with temperature and seasonal variations are known to occur in this condition.²

Overall rates of death due to stroke in Britain and the USA have fallen dramatically over the past 30 years, and data from Rochester, Minnesota, suggest that this is mainly due to a decline in incidence.³ Although workers at the Mayo Clinic attribute this fall almost entirely to detection and treatment of hypertension,³ recent surveys have shown that this is unlikely to be the case in Britain,^{4,5} and alterations in diet and levels of air pollution are possible alternative explanations. Clearly, secular changes in mean temperature could not account for such a large fall either, and the weaker effect for smoke and sulphur dioxide than for temperature shown by our data is evidence against the pollution hypothesis.

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