Thyrotrophin-releasing Hormone in Use

The presence of a substance in the hypothalamus which releases the thyrotrophic hormone (thyrotrophin or thyroid-stimulating hormone) from the anterior pituitary was first reported a decade ago. Thyrotrophin-releasing hormone, as it is called, has since been isolated from various species of animals and found to have the same chemical structure, a tripeptide, in all. Recently it has been prepared in synthetic form. This is now commercially available and has the same biological activity as the naturally occurring hormone.

In clinical practice thyrotrophin-releasing hormone can be of help in diagnosis, but at present its use will be limited to those specialized centres that can monitor its effects. Since it acts by causing the release of thyrotrophin from the pituitary, tests employing thyrotrophin-releasing hormone measure either the thyrotrophin liberated in the serum in response to a standard dose, or the resulting changes in concentration of protein-bound iodine, thyroxin, or triiodothyronine. In this way thyrotrophin-releasing hormone can provide both quantitative and qualitative assessment of thyroid function and also of the thyrotrophin reserve in the pituitary.

When given to healthy people by rapid intravenous injection there is a dose-related response to thyrotrophin-releasing hormone between doses of 50 and 400 μg. Peak concentrations of thyrotrophin occur in the serum after 15 to 30 minutes and gradually decline over the next 90 minutes. The response may be greater in women than men. When given by mouth a single dose of thyrotrophin-releasing hormone usually causes a more prolonged rise in the serum concentration of thyrotrophin than after intravenous injection. But the response after administration by mouth is more variable, so that this route probably offers only a qualitative assessment of thyroid function.

There are several clinical situations in which thyrotrophin-releasing hormone may be of diagnostic help. The first is in making a distinction between primary hypothyroidism and that secondary to pituitary disease. In primary cases the patients characteristically show an exaggerated and prolonged rise of serum thyrotrophin but no change in the concentrations of the thyroid hormones themselves. In secondary cases there is a greatly attenuated serum thyrotrophin response.

But some interesting exceptions to this have been reported. One patient with pituitary failure from Sheehan's syndrome had a serum thyrotrophin response indistinguishable from normal when given the releasing hormone. Possible explanations for this anomaly are either the presence of a small quantity of functioning pituitary tissue capable of stimulation, or the presence of a lesion not in the pituitary but in the hypothalamus. Patients with hypothalamic disease appearing as hypothyroidism will show a rise in both serum thyrotrophin and thyroid hormone when given thyrotrophin-releasing hormone. But the increase in serum thyrotrophin is commonly delayed. In patients with hyperthyroidism the releasing hormone does not alter the concentrations of either thyrotrophin or thyroid hormone. This is presumably because the already raised concentrations of circulating thyroid hormone will nullify a pituitary response to the releasing hormone.

When used diagnostically thyrotrophin-releasing hormone seems to be remarkably free from toxic effects. No adverse effects have been described on liver, kidneys, the peripheral blood picture, or haemodynamic state (pulse, blood pressure). When it is given by rapid intravenous injection a peculiar "urethral syndrome" may be seen comprising a sudden desire to micturate accompanied by nausea and dizziness. These effects are related to dosage and have been attributed to a direct effect of the hormone on the smooth muscle of the genitourinary and gastrointestinal tracts. Theoretically a similar response might be seen in bronchial smooth muscle, but this appears to be very rare. When the hormone is given by mouth, transient nausea may be troublesome.

Certain drugs may interfere with the response to thyrotrophin-releasing hormone. Thyroid hormone or antithyroid drugs will modify the response, as will corticosteroids and oestrogens. Interestingly enough, so will levodopa. The liberation of many hypothalamic releasing factors, including thyrotrophin-releasing hormone, is now thought to be mediated through central pathways controlled by catecholamines. There is now evidence that this hormone also causes the release of prolactin from the pituitary, but this should not affect its use as a diagnostic agent.


Broadcast Confidences

From the day they set foot in the wards of their medical school students are continually reminded that the doctor-patient relationship is based on trust and privacy—"I will respect the secrets which are confided in me," as the Declaration of Geneva puts it. Yet modern developments, such as the computer and the formation of general-practice teams with large numbers of paramedical workers, have made doctors and some of the public uneasy that this whole concept is being forgotten. Is this fear real? In a recent tape-recorded discussion two experienced doctors certainly thought so: a general practitioner commented that "at present one can only view the scene with some alarm," while a consultant venereologist said that "many of these [non-medical] employees do not have the same ethical standards or traditions that have been commonplace among doctors for centuries."

Some B.B.C. programmes, "Community Care: Mental Illness and Handicap," which have just finished a repeat transmission on Radio 3, must arouse doubts, yet again, about the handling of patients' private lives in public. In part this series consisted of eight case studies of individual mentally ill or handicapped people, with discussion of their treatment and community care. Though the actual names of these patients were changed, sufficient details of their illnesses and personal circumstances appeared to be given—including the hospital or local authority concerned—for them to be identifiable by their neighbours, friends or workmates. Many of these details are repeated in a booklet sold to accompany the series, and identification of the individuals concerned must have been made easier by the use of their voices and those of their
relatives in the actual programme. If such personal details had been merely workaday, perhaps complaint might have seemed less justified—but, among other things, it emerged that one man had been in prison and was now on probation; that a girl would be incapable of coping with the stresses of marriage; and that there were disagreements between the true parents and the houseparents of a hostel for mentally handicapped children over the management of a 6-year-old girl who was blind, spastic, and severely mentally handicapped.

This radio programme, which was designed for nurses in training, had the laudable aim of describing the role and scope of community care in mental illness and handicap. Nevertheless, it must be asked why far more care was not taken to disguise the patients presented in the case studies—as is done, for instance, in medical journals or in the B.B.C. television programme for doctors—by omitting the names of the hospitals concerned and obscuring some of the more obvious identifying features. In future doctors should ask themselves whether they are serving their patients' best interests by allowing hurtful and wounding details of such patients (who cannot give valid consent to such disclosure) to be discussed in a programme which is freely available to the public. And others concerned should remember the barrister's comments in our ethics discussion: "Nurses and medical social workers who also have no contract with those under their care are equally bound by this equitable duty of confidence."

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1 British Medical Journal, 1973, 2, 700.

Forcible Examination

A public protest made in West Germany last week deserves some attention. According to a press report an alleged "urban guerilla leader" called Frau Ulrike Meinhof, aged 38, is in a German prison awaiting trial. Eight years ago she had an operation for an intracranial tumour. Now the State prosecutor wants to have her medically examined to see whether she is fit to plead and can be held responsible for past actions. The examination proposed is said to entail the introduction of radioactive isotopes, and Frau Meinhof refuses to submit to it. The matter was therefore taken to court and finally reached the top in the Federal Constitutional Court. This ruled that the examination could be carried out, forcibly if necessary, even, according to the report, "with the use of a drug to overcome her resistance." It is against this decision that a group of West German intellectuals have protested.

They declare that the court's ruling contravenes the State's constitution. However that may be, the medical profession in West Germany should know that they will have the support of their colleagues in Britain in resisting any attempt to engage their members in the examination of a person against his or her will. Whatever the law may command in our respective countries, we share the same ethical tradition in medicine, and the forcible examination of a person is contrary to it. And the fact that the person is a prisoner would aggravate the offence. It is heartening, however, that this matter can be publicly ventilated in the Germany of today. In many countries, unfortunately, it still could not be.

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1 The Times, 23 August 1973.

The Cystic Meniscus

Cysts of the menisci of the knee are not uncommon lesions. The lateral meniscus is affected three times as often as the medial meniscus and twice as often in men as in women. The cysts are usually multiple and situated in the peripheral part of the meniscus in its middle third. Some of the cysts may remain intracapsular, but larger cysts break through the capsule of the knee, especially on the outer side, and lie between it and the deep fascia, so that they may present as a painful or painless swelling. The cysts are usually distended with clear gelatinous material similar to that found in ganglia. Approximately half of all cystic menisci are associated with a damaged meniscus, possibly associated with the tethering effect of the cyst.

The aetiology of cystic menisci, like that of ganglia, is still not fully solved. I. S. Smillie believes that a cyst derives from a degenerative process, the result of direct trauma, compression, or rotation, and adds his opinion that the condition tends to be confined to males of athletic age. B. M. Wroblewski in a review of 500 cystic menisci found that, though the commonest age of presentation was between the ages of 20 and 30 in men, patients' ages ranged from below 10 up to 80. A history of trauma was present in only 37%.

Moreover, when there was a history of trauma, the chance of the meniscus being torn was 59%; with no such history a meniscus tear was nevertheless present in 45%. Wroblewski concludes that, though trauma plays a part, it does so by damaging the meniscus rather than by producing the cysts. The occasional finding of bilateral cystic menisci or of a familial occurrence adds further mystery to the aetiology.

Surgeons differ on the correct treatment. All are agreed that physiotherapy, injection of sclerosing fluid, or aspiration has no place. Some cysts associated with meniscus which are presumably undamaged either do not give sufficient symptoms to warrant operation or spontaneously rupture and diminish in size or even disappear. For this reason some surgeons advocate that surgery should be limited to those patients with evidence of a torn meniscus, or, if it is lacking, that operation should be deferred for a time in the expectation that some cysts will disappear or become symptomless. Others advocate surgery for most patients whose symptoms are sufficiently troublesome. Removal of the cysts alone results in a high proportion of recurrence; removal of the meniscus alone leaves a swelling which may give rise to persistent discomfort. Complete removal of cysts and meniscus may sometimes be a difficult procedure, especially when the cyst is large and closely adherent to the capsule. But, if both have been adequately removed, recurrence is rare and the symptoms are usually relieved.

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Industrial Action and the B.M.J.

The B.M.J. is among those publications affected by industrial action. We regret the inconvenience caused to our readers.

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1 The Times, 23 August 1973.