Lesson of the Week

Thyrotoxic crisis masked by treatment with beta-blockers

D K JONES, S SOLOMON

Thyrotoxic crisis is a rare but serious condition that requires prompt medical treatment. We report on a patient who suffered severe cerebral dysfunction before thyrotoxic crisis was diagnosed because he was being treated with beta-blockers for coexistent disease.

Beta-blockers may mask the presentation of thyrotoxic crisis

Case report

In January 1981 a 59-year-old man who was known to have coronary artery disease was admitted to the regional cardiology centre with severe chest pain. He had no symptoms of thyrotoxicosis and on examination no evidence of a goitre, exophthalmos, or tachycardia. His heart rate was 80 per minute in sinus rhythm. There were no electrocardiographic changes nor a rise in cardiac enzymes, and a diagnosis of angina was made. Treatment with metoprolol and nifedipine was started, but this failed to control the angina and so the dose of metoprolol was increased.

Two weeks after admission the patient became delirious and showed signs of a toxic confusional state. There was no evidence of infection nor any focal neurological signs. His pulse remained in sinus rhythm with no tachycardia, but he developed an intermittent fever, his temperature never exceeding 38°C. His condition continued to deteriorate without a diagnosis being made, and he was transferred to the intensive care unit of our hospital. On admission he was delirious with saline depletion and fever. His pulse was in atrial fibrillation at a rate of 140 per minute, and he had developed a right upper-lobe pneumonia. Three days later thyroid function tests showed a serum thyroxine concentration of 333 nmol/l (26 µg/100 ml) (normal range 52-150 nmol/l; 4-11.7 µg/100 ml) and a triiodothyronine uptake of 54% (normal range 90-122%), giving a calculated free thyroxine index of 623. A diagnosis of thyrotoxic crisis was made, and treatment was started with carbimazole, propranolol, Lugol's iodine, and digoxin.

He lapsed into coma, assessed on the Glasgow Coma Scale¹ as best motor response 4, best verbal response 5, eye opening 5. An electroencephalographic examination showed generalised disturbance of brain function. He developed extensive bilateral pneumonia requiring tracheostomy, intermittent positive pressure ventilation, intravenous nutrition, and antibiotics. He gradually recovered during the following three weeks and was weaned from the ventilator, though this was difficult because of the extreme wasting and weakness of his respiratory muscles owing to a combination of thyrotoxic myopathy and the catabolic response to infection. He was eventually discharged from hospital and has since received radioiodine treatment.

Comment

Thyrotoxic crisis is a rare condition with a high mortality, especially if the patient goes into a coma.² The earliest signs are increased toxic reaction with fever, tachycardia, and increased central nervous system activity giving way to somnolence and coma, often with major dysfunction of the cardiovascular and gastrointestinal systems. The clinical manifestations are thought in part to be due to an increased susceptibility of the thyrotoxic patient to catecholamines.³ Beta-blocking drugs are known to control the tachycardia, fever, and tremor of thyrotoxic crisis.⁴ The metoprolol which this patient was given for angina masked the more common features of the thyrotoxicosis, and diagnosis was delayed because exophthalmos and goitre were absent, and the patient went into a coma and required intensive treatment for survival. As treatment with beta-blocking drugs increases, a high index of suspicion of thyrotoxic crisis must be kept in mind when patients present in a toxic confusional state or with increasing angina.

References

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- 3 Landsberg L. Catecholamines and hyperthyroidism. *Clin Endocrinol Metab* 1977;6:697-718.
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Are vaginal and oral herpes caused by the same infectious agent, and how infectious are these conditions?

Vaginal and oral herpes are caused by the same infectious agent—namely, herpes simplex virus or herpesvirus hominis. Two types, however, are serologically, microbiologically, and biochemically distinguishable from each other. Most infections in the bathing drawers area are caused by type II, and most infections on the rest of the body by type I. This is not a hard and fast rule—that is, both types have been recovered from infections in both territories—and recent analysis of herpesvirus DNAs has suggested that there are at least some intermediate strains, on a continuum, rather than two absolutely distinct types. It is more difficult to assess the infectivity of herpesvirus hominis. Genital infections are certainly spread venereally. Other infections are less of a hazard, partly because of the generally less intimate contact, and partly because most people above school age have some degree of immunity.

Intensive Care Unit, Whiston Hospital, Prescott L35 5DR

D K JONES, MRCP, medical registrar
S SOLOMON, MRCP, medical registrar