

## CASE REPORT

## Syncopal episodes in a young amateur body builder

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*Br J Sports Med* 2002;**36**:67–68

A 36 year old male weight training enthusiast suffered several syncopal episodes. An electrocardiogram confirmed atrial fibrillation with normal ventricular response. The patient admitted to taking anabolic steroids and bromocriptine. The atrial fibrillation was considered to be due to bromocriptine misuse.

A 36 year old male weight training enthusiast attended the accident and emergency department in September 1998 following two syncopal episodes at home resulting in a facial laceration which required suturing. He had a further episode in the department, with spontaneous recovery within seconds. No seizure activity was observed. Examination after recovery was normal apart from an irregularly irregular pulse. A 12 lead electrocardiogram (ECG) confirmed atrial fibrillation (AF) with normal ventricular response (fig 1A). He was admitted for further management.

He had no associated symptoms or any relevant past medical history apart from a tendency to faint under "stressful" situations during his teens. The patient later admitted to taking anabolic steroids (Dianabol (5 mg four times a day)) and more recently bromocriptine 2.5 mg at night as supplements to his body building activity. He was also on a strict diet and had been working unusually long hours recently. He missed his evening meal but took his bromocriptine at 10 pm the day before admission and took his steroids without breakfast

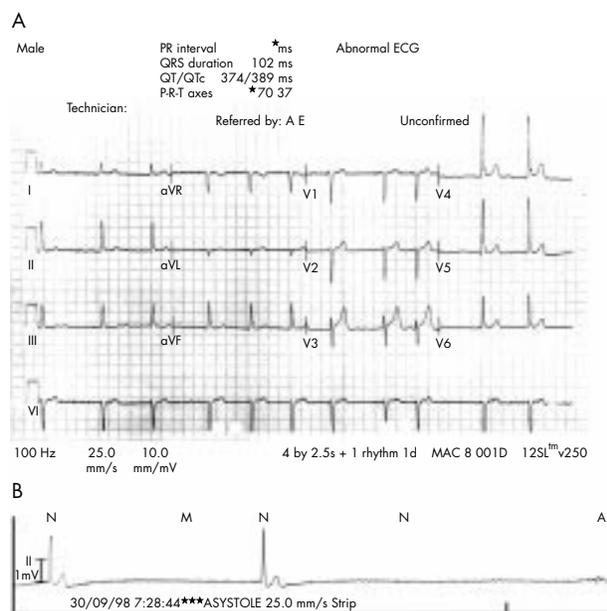
before attending casualty. There were no relevant risk factors apart from a family history of ischaemic heart disease.

On examination, he was found to be well built with facial acne and no goitre. He was afebrile with a pulse of 78 beats/min, AF, and a blood pressure of 140/60 mm Hg. There were no cardiac murmurs or any abnormal neurological signs. The rest of the examination was normal.

The drugs were stopped but within 24 hours of admission, he had two further syncopal episodes. These were associated with profound bradycardia (fig 1B). His blood pressure before and immediately after these episodes was normal. He remained in AF thereafter with a normal ventricular response and spontaneously reverted to sinus rhythm four days later. It was felt that his presentation was associated with bromocriptine abuse and he was discharged a few days later with a normal ECG.

Apart from a white cell count of  $14.2 \times 10^9$  and the ECG findings, all other haematological and biochemical investigations including thyroid function tests were normal. Carotid sinus massage, chest radiograph, and an echocardiogram (intraventricular end diastolic septal thickness = 1.2 cm; left ventricular end diastolic posterior wall thickness = 1.0 cm; left ventricular end systolic cavity = 3.8 cm; left ventricular end diastolic cavity = 5.6 cm) were normal. A follow up exercise stress test (Bruce protocol for 13 minutes and four seconds), tilt tests without and with provocation (isoprenaline infusion), and a 24 hour Holter monitor were essentially normal. The patient refused a further challenge with bromocriptine in a controlled environment or invasive electrophysiological studies because of work and training commitments.

He remained asymptomatic at a one year follow up and was still actively weight training as before. Contrary to medical advice, he continued taking anabolic steroids and also started growth hormone and insulin injections as supplements to his sporting activity. He denied taking bromocriptine.



**Figure 1** (A) 12 lead electrocardiogram showing atrial fibrillation with normal ventricular response; (B) cardiac monitor recording taken during syncopal episode.

## DISCUSSION

This is the first reported case of AF with profound bradycardia, resulting in syncopal episodes in association with bromocriptine misuse. Although the dose taken by the patient was relatively low, the side effects were probably potentiated by a combination of a very strict diet, taking bromocriptine (from a dubious source) in a fasting state,<sup>1</sup> working excessively hard (with increased vagal tone associated with his body building activity), and taking high doses of anabolic steroids. The patient claims that both amateur and professional body builders commonly use bromocriptine during the last few weeks of a training programme to "burn off" excess fat, and the drug is readily available both locally and through the internet for a small fee! This patient procured all his body building supplements through the internet. An internet search revealed web sites that will sell this and other medications without prescription. Incidentally, Dianabol (methandienone), although officially withdrawn in 1982 because of side effects, is still available on the internet.

**Abbreviations:** ECG, electrocardiogram; AF, atrial fibrillation

### Take home message

The misuse of prescription only medication that is readily available through the internet must be considered in any sports person with worrying symptoms and signs, who otherwise seems fit and well.

Bromocriptine, a dopamine agonist (primarily through the D2 receptor), has a wide range of clinical uses, and, although not licensed for this purpose, has been shown to reduce body weight in the obese.<sup>2</sup> Bradycardia, a rare side effect in humans,<sup>3</sup> has been suggested to be caused in rats by activation of central dopamine receptors.<sup>4</sup> The occurrence of AF in the setting of bradycardia is well documented.<sup>5</sup> Suggested modes of AF induction during bradycardia include the formation of multiple re-entrant circuits secondary to the increased heterogeneity of the recovery of atrial excitability and the enhancement of atrial vulnerability zones after very short or long basic cycle lengths.<sup>5</sup> Other reported cardiovascular side effects of bromocriptine include hypotension, left ventricular failure, aggravation of angina pectoris, acute myocardial infarction (secondary to coronary spasm), Raynaud-type syndrome, constrictive pericarditis, and oedema.<sup>3</sup> After ingestion of bromocriptine, prolactin suppression has been documented to last for over 36 hours regardless of the fasting state of the patient.<sup>1</sup>

This case is interesting in its presentation and highlights the risks associated with bromocriptine misuse. Also worrying

is the extent to which body builders abuse prescription only drugs and the ease with which these and many other drugs are available to the general public through the internet without prescription.

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Accepted 2 November 2001

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