Correspondence

Clenbuterol: a medal in tablet form?

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Sir

Before the last Olympic Games, few people had heard of clenbuterol, the controversial drug that was responsible for most of the expulsions from the games. There seems to be confusion about what class of drug it actually is.

Clenbuterol is a sympathomimetic agent with β2-agonist properties. It is not a steroid but a substituted phenylethanolamine with anabolic properties. There is no licence in the UK for human use although it is used orally in Germany, Italy and Spain as a therapy for asthma. It has also been used as a bulking agent in animals. The literature contains no reputable scientific papers that show muscle-enhancing effects in humans. Papers on animal studies do exist to show that clenbuterol does have an anabolic effect on both cardiac and skeletal muscle. The mechanism of its skeletal anabolic effect has been suggested to be β-adrenoceptor mediated and the effects on cardiac muscle via a cyclo-oxygenase metabolite of arachadonic acid. The favourable effect of clenbuterol on muscle growth is possibly also due to a specific increase in protein deposition and not to changes in the water content of muscular tissue. Obviously one cannot automatically extrapolate these anabolic effects in animal studies to humans. However, it should be noted that clenbuterol has been used as a pharmacological ergogenic aid in sport on a widespread basis for the past 2½ years in the UK. Initially the cost on the black market was approximately £3.00 pounds sterling for 90–100 tablets, now it is down to approximately 40.00 pounds sterling, showing the abundance of the drug on the black market. In the past year I have spoken to at least 50 clenbuterol misusers, the vast majority of whom were impressed by its anabolism, even when using it in the absence of other steroids. The current disclosure of clenbuterol is an indicator of the huge amount of sporting substance misuse (taken in megadoses) which is so prevalent in the UK at the moment, especially among non-competitive recreational 'athletes'.

Many of our clients who present themselves at drug agencies for needles and syringes to administer their anabolic steroids, reported that, in the past, while taking only clenbuterol they experienced palpitations, tremor and sweating.

Physicians seeing over-muscled young people (male and female) should bear in mind that they may be taking anabolic drugs and be aware of the side-effects, or of the drug interactions which may exist, if the physician prescribes any medication for that individual. One of the less appreciated side-effects of clenbuterol is potentially serious hypokalaemia which may result from β2-agonist therapy.

References

1 Silence MN, Matthews ML, Spiers WG, Pegg GG, Lindsay DB. Effects of Clenbuterol, ICT118551, and sotalol on the growth of cardiac and skeletal muscle and on β2-adrenoceptor density in female rats. Nauyn Schmiedebergs Arch Pharmacol 1991; 333: 449–53.