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Drugs in Sports. Performance enhancing drugs (doping agents (DA)) are used not only by competing athletes but are an increasing concern in sportspeople and non-competing amateurs, especially in the 17-27 year age group. A review of DA was recently published (*Lancet 2008; 371: 1872-1882*). The misuse of anabolic androgenic steroids (AAS) is estimated to occur in 1% of the population, and is increasing, particularly in gym users. The World Anti-Doping Agency (WADA) publishes an annual list of substances and practices, which are prohibited at all times in and out of competition. This list includes drugs that are known or suspected to enhance performance, affect the safety of athletes, are socially unacceptable or

attempt to make doping analyses insensitive. The WADA prohibited list includes **anabolic agents, hormones and related substances, β -2 agonists, diuretics** and other **masking agents**. Physicians prescribing a listed drug must be prepared to verify that the drug is medically justified in order to receive a therapeutic-use exemption (assessed by the relevant sports organisation).

Clinical diagnosis of misuse is difficult especially for AAS, where it is most likely to occur in young men who do weight training or sports that require strength or power. In addition to a comprehensive drug history, physical and mental examinations, laboratory tests including LH, FSH and urinary screening for AAS may also be considered. There are a number of **analytical methods** used to identify DA and attempts to mask the presence of DA by certain drugs (including diuretics) have failed. Analytical tests are now available which can detect newer AAS that have been designed to avoid detection. However, the detection of certain DA including AAS can be a challenge: e.g. it can be difficult to differentiate between exogenous and endogenous testosterone.

Adverse events related to the use of DA are now thought to be a much bigger problem than previously recognised. **Central stimulants** are associated with dose-dependent reactions including tachycardia, hypertension, arrhythmia, hyperthermia, aggressive behaviour and psychosis. **Ephedrine**, which accounted for 0.8% of herbal product sales in the US in 2001, was responsible for 64% of adverse herbal reactions including potentially life-threatening events such as acute myocardial infarction (AMI) and even death. **AAS** are associated with endocrine side-effects (including testicular atrophy, sterility and gynaecomastia in males and virilisation in females), somatic side-effects (including adverse effects on lipid profiles, hypertension, AMI, hepatic complications and even death) and neuropsychiatric side-effects (including anxiety, depression, hostility and paranoia). The use of AAS has also been associated with violent criminal acts however more studies are required to assess whether AAS precipitates anti-social behaviour or whether those prone to such behaviour are more inclined to use these drugs. **Erythropoietin**, used to enhance oxygen flow to peripheral tissues is associated with hypertension, AMI, thromboembolism and cerebrovascular disease.

Preventive measures such as DA analyses have reduced the incidence of doping in elite sports and the authors suggest that currently the proportion of positive DA tests is higher amongst high-risk groups in society compared with athletes. Education against the use of DA is important as users of these agents get information on them from friends, internet sites or the suppliers of the agents. Legislation also needs to be strengthened on the possession and use of AAS. [Editor's note: Further information, together with the full list of prohibited substances (which includes prohibited prescription and OTC medicines) is available on www.irishsportsCouncil.ie and www.wada-ama.org websites].



C. difficile infection in Ireland. *Clostridium difficile* - associated disease / *C. difficile* infection (CDAD/CDI) is a relatively common disease, and can be associated with significant morbidity and mortality. While CDAD/CDI is mainly healthcare-associated, there is increasing recognition of the existence of community-associated cases. *C. difficile* is now a notifiable pathogen in Ireland. **National guidelines** on CDAD/CDI are available online (www.hpse.ie/hpse/A-Z/Gastroenteric/Clostridiumdifficile/Publications/) which

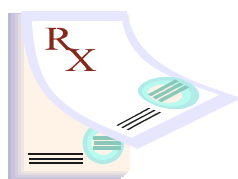
give guidance on specimen selection, transportation and management of both asymptomatic and symptomatic cases. A summary is available in the June edition of Epi-Insight (www.hpsc.ie).



Polymyalgia Rheumatica. Polymyalgia rheumatica (PRh), a common disease of the elderly, was recently reviewed (*BMJ 2008; 336:765-9*). The average age of onset is ≥ 70 years (almost never seen at < 50 years) and 75% are females. The **most characteristic symptoms** of PRh are bilateral shoulder pain, upper arm tenderness and stiffness (> 45 minutes in morning) of acute/sub-acute onset. Pain may also develop in the hip girdle and back of neck. Muscle weakness is not a feature but may be difficult to assess in the presence of pain; also if symptoms are untreated disuse atrophy may occur.

Other joints (e.g. wrists, knees) are less commonly involved. At the onset, patients often complain of **systemic symptoms** including fatigue, anorexia, low-grade fever and depression. Up to 30% of patients will also have giant cell arteritis, with headache, jaw claudication (pain on chewing) and visual disturbance. **Differential diagnoses** include inflammatory disorders (e.g. rheumatoid arthritis, other arthritides, SLE or scleroderma); non-inflammatory disorders (e.g. osteoarthritis, frozen shoulder, parkinsonism, fibromyalgia, depression). **Diagnosis** is usually based on the history and clinical examination (to exclude other causes) in the presence of raised ESR (> 40 mm/hr) and C-reactive protein on laboratory testing. Occasionally, the ESR may be minimally raised or normal at onset. A temporal artery biopsy should be done if giant cell arteritis is suspected.

Treatment. Glucocorticoids are the only known effective treatment for PRh. **The initial dose of prednisolone is 15mg/day, increasing to a maximum of 20mg/day during weeks 1-2 of treatment.** Higher doses confer no additional benefits, may delay the diagnosis of another condition and/or may increase the severity of adverse effects. Often the patients will report immediate benefits (within 1-2 days) and by 3-4 weeks a 70% global improvement (clinical and laboratory) should be seen. Alternative diagnoses should be sought if no response (especially in the presence of peripheral joint disease or younger age). Once improvement occurs, the dose should be reduced to the lowest level that maintains clinical remission with normal C-reactive protein +/- ESR. Treatment may be needed for up to 2-3 years; about 10% will relapse within 10 years and require further, longer courses of treatment. NSAIDs or methotrexate are of uncertain benefit and are not recommended. **Glucocorticoid-related adverse events are common** and include osteoporosis, avascular necrosis, infections, diabetes, hypertension, cataracts and steroid myopathies. Patients should be screened regularly, especially for cardiovascular disease; prophylactic treatment of osteoporosis is recommended. Care must be taken to rule out infection as the cause of a persistently raised ESR in the absence of other signs of active PRh disease.



Fatal Adverse Drug Reactions. Adverse drug reactions (ADRs) constitute a major problem for the individual and the community. A recent study reviewed the incidence of fatal ADRs in the Swedish population (*BJCP 2008; 65: 573-9*). The medical and medico-legal case records of 1,574 deaths registered during 2001 from 3 geographical areas were reviewed. The study identified 49 cases

that were suspected to have died from fatal ADRs. The commonest suspected causes were GI and CNS haemorrhage (n=18 and 14 respectively), cardiovascular disorder (n=5), other haemorrhages (n=4) and renal dysfunction (n=3). The **drugs most commonly implicated** were antithrombotic drugs (n=31), NSAIDs (n=9), antidepressants (n=7) and cardiovascular drugs (n=4). Cases of fatal ADRs were more likely to die in hospital (n=41) compared with fatalities from other causes. Of interest, only 8 of the death certificates had reported a suspected fatal ADR and only one case had been reported to the drugs regulatory agency. Although this study is limited by its retrospective design, the authors estimate that fatal ADRs account for 3% of all fatalities in Sweden. They recommend that patients who are prescribed anti-thrombotics and NSAIDs should be warned of the potential ADRs and prescribers should implement preventive measures wherever possible.