Chronic Opioid Therapy:
Does it Affect the Endocrine System?

This department covers selected points from the 2009 Canadian Endocrine Update: A CME Day from the Division of Endocrinology and Metabolism at McMaster University and the University of Western Ontario.
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Patients on opioid therapy, including methadone, for chronic non-cancer pain may experience endocrine side-effects of this therapy. The most common hormonal effect is hypogonadism, which may manifest as:

- decreased energy,
- low sex drive,
- irregular or absent menses (in women) and
- sometimes depression.[1,2]

Opioids cause hypogonadism via central mechanisms, so that luteinizing hormone (LH) and follicle-stimulating hormone (FSH) will be either suppressed or inappropriately normal. While many patients may benefit from opioids, adequate knowledge of these endocrine effects is still insufficient.

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Multiple studies have reported a high frequency of opioid-induced hypogonadism. Three different trials in the last decade have reported hypogonadal testosterone levels and sexual dysfunction in 83% to 89% of men on opioid therapy.[3-5] Small studies have reported absent or irregular menses and decreased LH/FSH levels among women on opioid therapy. A high level of sexual dysfunction is also reported by women on opioid therapy.[3-5]

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Dual-energy x-ray absorptiometry (DXA) BMD measurements showed a below normal BMD in 83% of the patients, with T scores < -2.5 (osteoporosis range) in 35% of the patients.[6] The BMD tends to be lower at the

lumbar than the femur level.[5] Smoking, lack of activity and low vitamin D levels are contributing factors to this low BMD and are more prevalent among patients on opioid therapy.

A number of epidemiological studies have tried to determine the relationship between opioids and osteoporotic fractures among non-cancer patients. Vestergaard and colleagues carried out a case-control study and found increased incidence of hip and spinal fractures among patients on different opioids as compared to control subjects.[7] The opioids considered in this study were morphine, fentanyl, oxycodone, codeine and tramadol. Another study reported an increased risk of non-spinal fractures among female narcotic users when compared with non-users.[8]

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Therapeutic options for opioid induced hypogonadism include discontinuing opioid therapy (rarely possible) and hormone supplementation, consisting of testosterone in men or birth control pill in women. Another option, only recently available in Canada, is the use of buprenorphine, a partial mu agonist that is not associated with hypogonadism and low testosterone levels.[9] Consultation with an endocrinologist may be considered. Dx

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