

Endocrine findings and serum opioid levels after 20 years of therapy

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Purpose

Little is known about intractable pain patients who must take opioids for many years. This investigation was done to determine endocrine findings and opioid serum levels in a group of intractable pain patients who self-administered high dosages of opioids for 20 or more years.

Method

Eighteen (18) intractable, pain patients in a rural California county clinic were maintained on opioids under the auspices of the California Intractable Pain Act for 20 or more years. There were 10 male and 8 female adults who self-administered over 300 mg equivalent of morphine daily. No hormone replacement was prescribed by the pain treatment clinic. Each patient had an 8:00 am, fasting serum specimen taken and tested for: cortisol, pregnenolone, testosterone, estrogen, corticotropin (ACTH), and follicle stimulating hormone (FSH). A separate blood specimen was taken at midday for opioid serum level determination.

Results

Hormone abnormalities were extremely varied. Only one (5.6%) patient was normal on all 6 assays. The most common abnormality was low FSH in 6 (33.3%) and low testosterone in 8 (44.4%). One (5.6%) patient each had low pregnenolone and estrogen levels, and two (11.9%) had low cortisol levels. High serum levels were found in patients as follows: pregnenolone (one, 5.6%), ACTH (4, 22.2%), estrogen (1, 5.6%), and cortisol (4, 22.2%). Opioid serum levels, when compared to published tables for dosage, were quite low.

Conclusions

Opioids primarily suppress FSH and testosterone. In a small number of patients suppression appeared to also affect other hormones including cortisol, estrogen, and pregnenolone. High levels of ACTH, estrogen, pregnenolone, and cortisol were present in some patients indicating that severe pain and its endocrine response may not sufficiently be controlled by high dose opioids. Opioid serum levels appeared lower than expected indicating that opioid elimination may be accelerated in long-term patients.