PROJECT REVIEW

"Hypothalamic-pituitary-gonadal axis feedback-Endocrine profiling as a supportive technique to detect abuse of anabolic, androgenic drugs including SARMs"

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The classical methodology to detect anabolic steroids or other anabolic substances in doping analytics is GCMS and LCMS. However, the example of THG has demonstrated that even substances with a chemical structure typical for this class of substances are sometimes not identified during routine screening if their exact chemical structure is unknown. Moreover pharmaceutical companies are developing non steroidal androgen receptor modulators (SARMs) which have a complete different chemical structure and metabolism than classical anabolic steroids. Therefore indirect detection techniques may be very helpful in the future to supplement the direct detection of anabolic substance abuse. From the classical anabolic steroids, including Testosterone, it is known that exogenous administration of these substances directly affect the production of endogenous hormones via feedback mechanisms on the hypothalamic pituitary gland axis (Mahabadi et al. 2009). This concept is so efficient that treatment with low testosterone doses is a well established pharmaceutical concept for male contraception (Gu et al. 2009, Misro et al. 2009). The simultaneous detection of ACTH, TSH, PRL, FSH, and LH in comparison to inhibin, estradiol, thyroxin and testosterone levels and indicators for anabolic activity, such as IGF-1 and myostatin, could be a supportive strategy to detect anabolic substance misuse, including SARMs.

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Results and Conclusions

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