

Utilitarian argument for moral uses of ACTH and Thyrotropin

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The response to plasma hypoglycemia includes the release of adrenocorticotrophic hormone (ACTH), which stimulates catabolic activities. One such activity is the release of free fatty-acids in adipose tissue, serving to provide substrate for the oxidative metabolism. It is plausible that the superficial benefit of weight loss (on the limbs) may make ACTH an attractive prescription hormone. Another hormone, thyrotropin (TSH), primarily affects the metabolic rate of cells, inducing thermogenesis (increasing oxygen consumption). Thyroxine also upregulates adrenergic receptors in the heart, increase the response to sympathetic stimulation, thereby increasing cardiac output. For long-term endurance athletics, thyrotropin has some appeal as a physical enhancer. In this paper, we will discuss the implications of these hormones in relation to their non-medicinal uses.

TSH and thyroid hormone substitutes, rather than ACTH, have been traditionally used for weight-loss and improvement of physique, but the many of the moral platforms developed herein apply equally to both. While it is not the focus of this paper, the competitive advantage granted by these hormones is a contemporary issue in the realm of professional athletics, where performance on the field (especially in the Olympic tournaments) can be very political. Although some studies have shown that ACTH does not inflate maximal performance, it is thought to at

least decrease the perception of fatigue during moderate strain (1). The popular drug Cytomel, a synthetic form of T_3 , is abused by many athletes to eliminate fat and increase muscle tone. Despite this practice, athletics are simply entertainment, and they do not reflect the broader social impact of these hormones. We ought to be more interested in the competition that occurs as the workforce vies for jobs.

Limiting our discussion to the employment market, it has been demonstrated that obese women earn less than their leaner coworkers (2). In the context of the lipolytic effects of both ACTH and TSH, we are predominantly concerned with our society's idolatry of beauty, particularly slenderness, and prejudgments formed on the basis of weight alone. Since both hormones are available as OTC medications, there is presumably very little resistance to using these drugs for the betterment of appearance rather than health. At first glance, it might seem strange that there is no intervention to prevent consumer meltdown, but most of these OTCs are ineffectual as practical forms of weight-loss. Thus, while competitors for employment (and indeed anybody who is exposed to the glamour of movies and ads) have plenty of motivation to use these hormones for weigh-loss, the only practical route is through a physician's prescription.

The primary ethical conflict that exists between the physician and patient occurs between the non-maleficence (Hippocratic) principle and the patient autonomy principle. The non-maleficence

principle makes it incumbent on physicians to do no harm to their patients, and can be easily summoned in cases where ACTH/TSH causes obvious benefit or damage. In addition to being an effective treatment for hypothyroidism, thyroxine (T_4) has been shown to improve the success of antidepressant regimens (3). In the mitigation of autoimmune diseases, it is morally right to administer ACTH because it is an effective immunosuppressive drug. However, hypercortisolism has several harmful side-effects, which include adrenal insufficiency (suppression of glucocorticoid production) and simulated diabetes. In general, non-maleficence presides over patient autonomy, meaning that ACTH is purely medicinal, but there is the possibility that deliberate overdosage levels of ACTH will begin to exert its cosmetic effects. In these situations, we must decide what an ethical dosage is, and whether it is ethical at all.

In an egalitarian system, each individual ought to be entitled to some arbitrary, but equal ability to realize a high quality of life. The amount of adjustment necessary to achieve this homogeneity is some fraction of the capacity to benefit. In other words, an individual may still be able to benefit from additional therapy, but if this benefit gives the patient a greater ability to realize the same quality of life as another patient, administration of the therapy is immoral. Such capacity to benefit is dependent on physiology, which is highly variable among the population. Thus, an inherent inequality becomes apparent: one patient may benefit more than another

from TSH or ACTH, even for dosages of associated with an equal risk of suffering deleterious side-effects. Furthermore, ACTH and TSH treatments are prohibitively expensive (4) and thus there is an additional economic inequality, reinforced by the fact that frequencies of obesity are highest among the poorest classes. The only way to realize the kind of ethics outlined above must come from preferential subsidy by government or other sources, such as charities or benefits. Of course, we must define the demography to which we can apply these egalitarian ethics. Surely we must be ethnocentric to some extent; the current wealth (and health) disparities between the US and underdeveloped countries has too much inertia to be reduced within a reasonable time-frame. A more appropriate subset of individuals might be those who work within a company, for instance, where the competitive aspect is internal promotion.

At first glance, the egalitarian approach seems to be optimal for both hormones, because enhance therapy should bring all individuals to an equal level of opportunity. However, we have overlooked an extremely volatile problem. With ACTH, one consequence of chronically elevated corticoid levels is Cushing's syndrome, in which fat is deposited in the face and abdomen, negating the original intent. If the weight range within a population is sufficiently large, then it becomes impossible for obese outliers (who feel the full force of prejudice) to gain from ACTH, regardless of how equitably access to it is allotted. Thus, we must downscale our ethics to a narrow

weight distribution. Thus, an egalitarian system, while justified, is simply incompatible with the nature of the hormone. This may also become a problem for a hormone like TSH, where even though the side-effects are comparatively minor and easily reversible, the dosages called for to satisfy the egalitarian principle would be sufficient to cause hyperthyroidism and all of its nasty symptoms.

In this instance, two well-established ethical models come to divergent conclusions. In order to defend the use of ACTH, utilitarians might argue that within non-pathological ranges, ACTH improves self-image, thereby increasing the total quality of life in a population, with some weight-loss being a byproduct. This argument is subject to the same limitations as egalitarianism because we must now consider the fact that the improvement in self-image is again commensurate with dosage. But where egalitarianism fails in this instance, utilitarianism provides us with an explicit way to negotiate this problem: it is morally right to maximize the gain in happiness, measured in quality-adjusted life year (QALY). Such a computation generally involves the redistribution of money and related assets towards individuals with the highest capacity to benefit.

A utilitarian system does not require that each individual be afforded an equal quality of life. Indeed, a moral scheme might necessitate that the healthy become healthier and the sick become sicker, as long there is a net gain in quality of life. In any case, the recovery of positive self-image associated with

weight-loss almost certainly occasions an overall gain in the quality of life in a population. Thus, using a utilitarian argument, we can say that the use of these hormones is morally right. Also, because the QALY gain from TSH as a weight-loss hormone might actually be greater than that of ACTH, utilitarians have some premise to say that TSH is the more ethical drug.

Utilitarianism, while it allows us to unequivocally say whether an action is moral or not, can sometimes be an inadequate representation of the real social interactions. Because every individual in a population is treated as equal, utilitarianism is unable to accommodate interpersonal relations, in which the happiness of one individual affects the happiness of neighboring individuals (perhaps beloveds) to different extents.

We have shown that an egalitarian theory of non-medicinal hormone use leads to the conclusion that the use of ACTH and TSH for weight loss is morally wrong. Thus, we appealed to the utilitarian theory, which allowed us to hypothesize that both TSH is actually more morally right to use than ACTH.

References:

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