of GH, especially during the first year of treatment, may be of significant benefit to achieving greater adult height. Although the authors have carefully developed regression equations for determining near adult height and height gain, between GH start and near adult height, one must be cautioned that statistically significant contributions to the variance in an outcome variable are meant to be used in populations and may not apply in individual cases and may be inappropriate guides for therapy.

William L. Clarke, MD

Focusing Illusion: Wealth, Height, and Happiness

If I were a rich man…: be careful what you wish for. I predict my life would be better if I won the lottery. While I'm pretty happy now, I'd be very happy then. To most of us, that statement seems an obvious truth—not to be questioned, much less explored scientifically. Kahneman (psychologist, winner of the 2002 Nobel Prize in Economics) et al questioned this and the related assumptions using creative research methodologies. They propose a "focusing illusion" is responsible for an exaggeration of the benefits of income to happiness. A focusing illusion occurs when people concentrate attention on the influence of any single factor on their global well-being and exaggerate its importance relative to factors contributing to moment-to-moment happiness.

Evidence for the focusing illusion was found in several lines of research. In one study, students were asked "how happy are you with your life in general" and "how many dates did you have last month." When asked in that order, no correlation ($r = -0.01$) was found; when the statements were reversed, a statistically significant correlation ($r = 0.66$) arose—suggesting that asking about dating exaggerated the salience of that single domain when evaluating one's life on the whole. Another study investigated predicted vs actual effects of several variables on the percentage of time spent in a bad mood. Women were asked what percentage of time they spent in a bad mood yesterday, then to estimate percentages of time spent in a bad mood for people having a lower (<$20k) vs higher (>$100k) income, being alone vs being married for (women >40 years of age) being micromanaged vs not closely supervised at work, and having no health insurance vs excellent benefits at work. Global estimations of bad mood of participants were compared with their own subjective well-being measured moment-to-moment. Predictions for others' mood were compared with actual reports of respondents. The prevalence of bad mood for oneself was overestimated when compared with subjective well-being measured moment-to-moment. Moreover, the prevalence of bad mood predicted for those with less desirable circumstances was grossly exaggerated.

Kahneman et al catalogued several studies providing similar findings and concluded that false intuitions are likely to arise from failure to recognize that people do not continuously think about their circumstances. While recent significant changes in life circumstances (eg, lottery winnings or becoming disabled) may result in multiple daily reflections, an individual's attention eventually returns to the routine (eg, having breakfast or watching TV).

Finding an overall weak relationship between income and happiness or global life satisfaction, Kahneman and colleagues proposed that the focusing illusion helps explain why people seek higher income beyond a modest threshold (predictions exaggerate the increase in happiness) and why the long-term effect of increased income becomes relatively small (attention shifts to routine tasks). Another explanation of why high incomes fail to translate to happiness is related to the fact that as income rises, an individual's time use often does not shift toward activities associated with improved affect. Subjective well-being is connected to how people spend their time. The activities in which wealthier people spend relatively more of their time are associated with no greater happiness, on average, but with slightly higher tension and stress. Accordingly, the focusing illusion may be responsible for global judgments of life satisfaction being higher without increasing happiness. When asking people about their well-being, results differ when using a moment-to-moment measure (either collected in the present moment or by asking them to recall feelings during an episode the previous day) compared with global judgments of life satisfaction or overall happiness or a global report of yesterday's mood.

Despite the weak association between income and experienced happiness, most will work very hard to earn more money. The focusing illusion can lead to misallocations of time if one's objective is increased happiness, for example, accepting lengthy commutes (which are among the worst moments of the day) to sacrificing time spent socializing (which are among the best moments of the day).

Kahneman D, Krueger AB, Schkade D, Schwarz N, Stone AA. Would you be happier if you were richer? A focusing illusion. Science. 2006;312:1908-10.

Editor's Comment: *A 13-year-old boy is referred to a pediatric endocrinologist for an evaluation of short stature. "How are you doing?" the doctor asks. The context of the visit to the growth specialist and extra attention directed toward accurate height measurement makes it clear to the child and his accompanying parent that the doctor is really asking, "How are you doing being short?" At that moment, the child and parent will likely focus on events of height-related name-calling or incidents of being handed a child's menu at the restaurant. The child*

hesitates to respond (fairly typical of youth this age in such circumstances), so the mother replies, "He's very upset about his height." The growth chart reveals this young man meets criteria for idiopathic short stature. The physician may conclude he is a good candidate for treatment with growth hormone (GH) because he meets anthropometric criteria and is also suffering from experiences related to his diminutive size.

The analysis of Kahneman and colleagues suggests we would likely arrive at quite a different impression of the child's psychosocial and emotional adaptation if we were to assess these in a manner that does not bias attention toward a single factor: height. Studies which mask "height" as the variable of interest suggest that youths who are markedly shorter than average are, by and large, indistinguishable in their self-reports and in descriptions by their peers from those of average or tall stature with respect to their reputation, the number of reciprocated friendships, and their likeability.[1]

Setting aside these and related findings,[2] there is a reasonable likelihood that this youngster would receive treatment based on complaints of psychosocial stressors and insistent parents. Should we anticipate that treatment will improve this youth's mood state? (Keep in mind that, by asking different questions, we would likely learn this teen's mood is better than our perfunctory evaluation suggests, and that height is far less salient in his life on a moment-to-moment basis than we are led to believe.) Or, based on this focusing illusion, might we predict that the experience of daily GH injections and regular visits to the pediatric endocrinologist for repeated height measurements and physical exams will increase the likelihood that the youth and parent focus on growth and height not only during the visit but also on a daily basis? If, as suggested elsewhere[3] by the same group of investigators that, "nothing that you focus on will make as much difference as you think," then taking children and their families down this road might be quite counter-productive. An alternative would be to embed a psychosocial component within the medical evaluation and shared decision-making with the family. Independent of whether a decision to initiate GH treatment is made, a psychosocial intervention to address on-going psychosocial stresses associated with short stature would likely result in improved daily function and increased patient happiness and parent satisfaction. Suggestions on how such an interdisciplinary model of care could be implemented have been described.[4]

David E. Sandberg, PhD

References

1. Sandberg DE, Bukowski WM, et al. Pediatrics. 2004;114:744-50.
2. Ulph F, Betts P, Mulligan J, Fung CM, et al. Arch Dis Child. 2004;89:17-21.
3. Schkade DA., Kahneman D. Psychol Sci. 1998;9:340-6.
4. Colsman M, Sandberg DE. Psychological assessment. In: Kelnar CJH, Savage MO, Saenger P, Cowell CT, eds. Growth Disorders. 2nd ed. London: Hodder Arnold; in press.

Tolvaptan, A Selective Oral Vasopressin V_2-receptor Antagonist for Hyponatremia

Hyponatremia due to increased secretion of antidiuretic hormone (ADH) may be due to the syndrome of inappropriate secretion of ADH (SIADH) related to an insult to the central nervous secretion (or rarely in children—ectopic secretion of ADH), heart failure, or hepatic cirrhosis. Pathogenetically, it is the result of excessive and inappropriate reabsorption of free water in the renal collecting ducts in response to ADH signaling through the V_2 receptor (OMIM 300538, chromosome Xq28), a G-protein coupled receptor that stimulates adenylyl cyclase and generation of cyclic AMP. ADH is a cyclical 9 amino acid peptide derived from a larger parent protein that also contains within its structure neurophysin—a carrier of ADH—and a glycoprotein. Parenterally administered non-peptide antagonists to ADH have been developed to block the action of ADH in the renal collecting tubule by binding to the V_2 receptor and increasing the urinary excretion of free water (Figure 1).[1] In a randomized, double-blind, placebo-controlled, out-patient study in which fluid intake was not monitored, the investigators ascertained the efficacy and safety of the oral administration of one such agent, tolvaptan, in 171 adults (>18 years of age) with hyponatremia (120-134 mEq/L), 91 of whom had SIADH. Compared to placebo, tolvaptan rapidly and safely increased and maintained serum sodium concentrations into the low normal range over a 30-day interval of treatment (Figure 2). One week after discontinuation of tolvaptan, serum sodium levels declined to values seen in the group that received the placebo. As anticipated, tolvaptan increased urine output initially. The drug was well tolerated. The authors concluded that orally administered tolvaptan is a clinically effective V_2-receptor antagonist in adults with hyponatremia of diverse etiology.

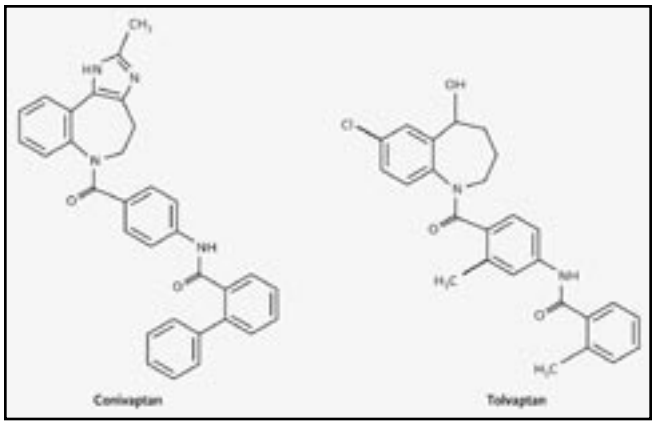

Figure 1. Structure of the Oral Vasopressin-Receptor Antagonists Conivaptan and Tolvaptan. Reprinted with permission from: Hays RM. N Engl J Med. 2006;355:2146-8. Copyright © MMS. 2006. All rights reserved.