

Effects of Prolonged Growth Hormone Administration in Rats With Chronic Renal Insufficiency

Surprisingly, growth hormone (GH) administration to children and rats with chronic renal failure significantly increases the growth velocity (GV) over short periods. The long-term effect on GV and kidney anatomy, physiology, and histology is not yet known. Therefore, Allen et al sought to determine the long-term effects on rats. Four groups of young rats were placed in the study: GH-treated and untreated 75% nephrectomized rats and GH-treated and untreated sham-operated rats. GH 1.0 mg SC was administered tiw. The rats were examined at 9, 15, and 25 weeks. GH was administered during weeks 4 through 12. The following results were determined:

1. Uremic GH-treated rats grew significantly more than untreated rats. The lengths of treated uremic rats were comparable to untreated sham-operated rats at all times.
2. Sham-operated rats treated with GH were longer than untreated sham-operated rats.
3. Weights of uremic GH-treated rats equaled those of untreated sham-operated rats at 15 weeks.
4. Glomerular filtration rate was markedly and comparably reduced in all uremic rats. GH therapy did not affect glomerular filtration rate in either group.

5. Diminished food efficiency of uremic rats was not improved significantly with GH treatment.
6. Both mean glomerular area and sclerotic index were increased in GH-treated rats.
7. Mortality from chronic renal failure was 8 of 19 (42%) in uremic GH-treated rats versus 4 of 13 (31%) in untreated uremic rats.

Allen DB, Fogo A, El-Hayek R, et al. *Pediatr Res* 1992;31:406-410.

Editor's comment: *Studies of this sort are very much needed to sort out the beneficial versus detrimental effects of GH treatment in children with chronic renal failure and those posttransplantation (GGH 1991;7[2]:13-14). Collaborative efforts among several centers are in progress to determine the effects of long-term GH treatment in chronic renal failure. In the meantime, GH should not be used for growth retardation in renal disease unless under an approved Investigational Review Board (IRB) protocol.*

Robert M. Blizzard, MD