

Growth Hormone and Mortality in Prader-Willi Syndrome

Abstract – Phillip D. K. Lee, MD, FAAP, FACE www.GGHjournal.com June 2006

The administration of growth hormone (GH) has numerous benefits for individuals with PWS including a decline in the fat percentage of lean body mass, and improvement in body composition, agility, and muscle strength. In the almost 20 years since the introduction of the usage of GH in PWS, very few bad effects have been reported. However, 2 children with PWS who were receiving GH died in 2002. This led to a discussion about the safety of GH in PWS and ultimately resulted in the drug company Pfizer applying a warning label to its GH prescriptions. This warning was very stern and stated that GH should not be used in those with PWS who are severely obese or have severe breathing problems. In 2004, other drug companies added the same warning to their GH drugs. This led to a tremendous amount of concern in the PWS community, as denying GH to individuals with PWS can be very damaging to their health and lifestyle.

In this paper, Lee, a respected and knowledgeable endocrinologist who specializes in PWS, describes the known cases of deaths related to GH in PWS and discusses in detail this controversial topic. The question of death being increased due to GH therapy is a very important one, but it is very difficult to answer largely because there is not enough data to make a satisfactory statistical analysis.

Unfortunately, premature death in PWS has been a problem since long before GH was used as a treatment. Deaths are often due to cardio-respiratory illness, and none of the reported 190 deaths reported to PWSA (USA) since 1977 appear to be related to GH. Since May of 2006, 18 children and 2 adults worldwide with PWS died while receiving GH. Some of these deaths were due to causes completely unrelated to GH, such as drowning in a bathtub. Many of the deaths were in individuals who were significantly overweight, and almost all of the cases were not receiving the dose on the medication's label.

Some have suggested that GH can cause death in individuals with PWS with breathing problems. For individuals who appear to have died because of severe breathing problems, it is noted that these problems were present before GH treatment even began. In 5 out of 6 cases examined cases of those with breathing problems, GH treatment did not make these types of conditions worse. Lee states (see below) that special analysis of sleep problems need not be standard for every individual being treated with GH. However, if an individual has a history of excessive daytime sleepiness or extreme breathing problems during sleep, he recommends a sleep analysis before GH treatment.

Lee feels the concerns about GH and death in PWS are ultimately not valid and concludes with the following main points: 1) deaths in infants with PWS are usually due to feeding aspiration, have nothing to do with GH treatment and should be closely monitored; 2) deaths in older children and adults with PWS are very often associated with obesity, and the insulin resistance associated with obesity may be increased by GH; this deserves special attention; 3) tub-drowning deaths have nothing to do with GH and should be addressed separately; 4) most of the deaths during GH treatment occurred with doses below the recommended amount; doses should not be limited and should be well-monitored; 5) clinical follow-up is crucial to preventing deaths which are attributed to GH treatment, as almost all of the reported deaths occurred within the first 18 months of treatment; and 6) sleep analysis should not be required for GH treatment unless the patient has an outstanding history of breathing problems which merit further examination before treatment begins. (*This opinion is not held by most PWS experts who believe a sleep study should be done. See the PWSA (USA) precautions article.*)

GH as a treatment for those with PWS has led to improvements in height and appearance in addition to providing what Lee calls “a new outlook on life.” Further population studies and more thorough follow-up with patients will add to our knowledge of GH and will lead to a better understanding of how to best administer GH while sparing the seemingly unnecessary association between deaths in PWS and this life-altering treatment.

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