

The Milkweed

Dairy's best marketing info and insights



Issue No. 323, June 2006

IGF-1 in rbGH-Milk Linked to Increased Human “Twinning”

by Pete Hardin

Additional hormones that result from injecting recombinant bovine growth hormone (rbGH) dairy cows are cited as a major factor causing an increased number of multiple human births in the U.S.

That's the conclusion of an article in the May 2006 issue of *The Journal of Reproductive Medicine*, which links increased “twinning” in humans in the U.S. to elevated levels of a “secondary hormone”—Insulin-like Growth Factor-1 (IGF-1)—found in milk. Milk from cows injected with rbGH has significantly higher levels of IGF-1 than normal cow's milk.

Possible metabolic effects in humans, due to elevated IGF-1 levels in milk from cows injected with rbGH, have been the core of intense debate about rbGH human safety issues since the late 1980s. Monsanto produces and markets rbGH as “Posilac”—a synthetic, biotech-derived cow hormone.

The article was authored by Gary Steinman, M.D., Ph. D., an obstetrician from Astoria, New York. Steinman contends that extra IGF-1 in milk from rbGH-injected cows is causing a major increase in multiple births in the U.S.

Steinman's analysis is troubling for the U.S. dairy industry. His article claims a link between elevated hormone levels in milk from rbGH-injected cows and changes in human metabolism. USDA estimates that in recent years, about 22 percent of all lactating dairy cows in the country receive Posilac injections.

The federal Food and Drug Administration (FDA)—the nation's food safety “watchdog” agency—has historically argued that no metabolic changes could occur in persons drinking rbGH-derived cows' milk.

For nearly two decades, a huge public controversy about the potential dangers to milk-drinking humans from additional IGF-1 content in milk (from rbGH-treated cows) has pitted Monsanto and the FDA versus food activists, a handful of cautionary scientists, and many skeptical consumers.

The *Journal of Reproductive Medicine* article specifically links use of rbGH to increased multiple human births in the U.S. **Injecting synthetic growth hormones in milk cows increases their production of IGF-1—a powerful “secondary” hormone. IGF-1 IS EXACTLY THE SAME IN BOVINES AND HUMANS. IGF-1 spurs cellular growth function.**

Steinman's article summarizes:

“Genotypes favoring elevated IGF and diets including dairy products, especially in areas where growth hormone is given to cattle, appear to enhance the chances of multiple pregnancies due to ovarian stimulation.”

The article's text notes: “IGF increases the sensitivity and responsiveness of ovaries to follicle stimulating hormone (FSH).” Increased sensitivity of the ovaries to FSH is cause for more “twinning”.

Steinman offers data on multiple births in the U.S. in five-year segments, starting in 1977. He cites two other phenomena that have contributed to a dramatic increase in multiple human births in the past three decades: assisted repro-

Continued on page 2

IGF-1 in rbGH-Milk Increases Human “Twinning”

Continued from page 1

ductive technology and intentional delay of child-bearing (which raises the mean maternal age).

Table 1 of Steinman’s article, titled “Total Twin Births per 100 Live Births in the United States”, details the following data (reformatted from the original):

<u>Year</u>	<u>Rate of Twins per 100 births</u>
1977	1.89%
1982	1.93%
1987	2.15%
1992	2.35%
1997	2.60%
2002	3.10%

Steinman’s annualized data shows that the rate of multiple human births in the U.S. increased by 31.9% from 1992 to 2002. FDA allowed commercial sale of rbGH to begin in early February 1994.

Steinman further states:

“However, the continuing increase in twinning rate into the 1990s may also be a consequence of the introduction of recombinant bovine somatotropin (bST) treatment of cattle to enhance milk and meat production. Growth hormone induces an elevation of IGF in these animal products. Thus, the rise in IGF levels secondary to administration of bST during the last 2 decades, at least in the United States, may have played a role in enhanced twinning in humans.”

Steinman cites research findings that IGF-1 (contained in foods) survives digestion and enters the human bloodstream. That fact is in direct contradiction to FDA claims—sustained by published scientific/medical literature.

Human “twinning” may result from several factors, in addition to diet. Steinman’s article cites factors such as inheritance (nature) and diet (nurture). He calculates that tendencies towards twinning can be modulated by environmental factors like milk consumption, particularly from cows injected with rbGH.

More fuel on the anti-rbGH fire ...

Steinman’s research will be subjected to intense scrutiny, both by critics and supporters of Monsanto and biotechnology.

Most importantly: Steinman’s research suggests environmental factors may enhance multiple human births. That assertion cracks open the door for a wider and more intense discussion about what other human metabolic issues may correlate with higher IGF-1 content in the U.S. milk supply, since FDA allowed commercial sale of rbGH in early 1994.

IGF-1 is linked to development of the following cancers: breast, colorectal, and prostate. Thousands of studies printed in medical and scientific journals have explored the relation of IGF-1 to development of cancer.

FDA has historically asserted that higher levels of IGF-1 in milk pose no health dangers to the public.

The Milkweed’s future analysis:

If the wider implications of Steinman’s “twinning” study lead to a public uproar about continued use of rbGH in the nation’s dairy herd, watch consumers scramble for “rbGH-Free” dairy products. Dairy processors may fall over each other trying to obtain “rbGH-Free” milk supplies—just as they are now fighting for limited quantities of organic milk.

The *Journal of Reproductive Medicine* article opens up a whole new avenue of debate about possible impacts of rbGH—and its secondary hormone, IGF-1—on human metabolism. (See Pete Hardin’s comments, page 11.)