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More tiny babies surviving, but with problems

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By Lynne Peeples

NEW YORK (Reuters Health) - While still extraordinarily unlikely, the chances of survival are on the rise for infants born weighing less than 400 grams, or about the size of a potato, hints a new survey of the world's tiniest babies.

Of course, the children that do survive such a premature birth are not in the clear, and often face an array of health problems as they grow up.

"By far, the vast majority of infants born alive weighing less than 400 grams are too early in pregnancy to survive," lead researcher Dr. Edward Bell of the University of Iowa, in Iowa City, told Reuters Health in an e-mail.

He guessed that somewhere between one in 1,000 and one in 100 can be expected to make it, and added that size is less important for a baby's chances than its stage of development.

Bell was inspired to conduct the survey by one lucky infant, now patient #11 in the Tiniest Babies Registry. The baby girl was born at his university weighing just 359 grams.

"When our patient survived, I began to look around to see what other tiny survivors had been reported," Bell recalled.

With the help of his colleague Diane Zumbach, Bell tracked down the records of 110 infants born between 1936 and 2010 from both the medical literature and the lay press, including the Guinness Book of World Records. Thus began the tiny-babies registry (www.healthcare.uiowa.edu/tiniestbabies), which continues to grow.

Most of the babies in the current report were born in the U.S. after 1990 and the number of tiny infants who survived each year increased through that decade and the next.

All of the registry babies weighed between 260 and 397 grams after spending 22 to 34 weeks in their mothers' wombs.

The numbers suggested that gestational age -- or weeks of pregnancy - appeared to be more important than birth weight in determining whether or not a baby will survive.

"A normally-grown 400-gram baby would be approximately 19 weeks along in pregnancy, which is 3 to 4 weeks before reaching a level of development that allows even a chance of survival outside the womb," Bell said

In other words, the tiny survivors were unusually small for their gestational ages but more fully formed than an average 400-gram fetus.

Further, girls seemed to have better odds of living through the ordeal than boys. Three-quarters of the surviving infants were female, including the 10 smallest babies, the researchers report in the journal *Pediatrics*.

The reason for this difference remains unclear, but the researchers guess that it might have something to do with hormones and their effects on the maturation of the lungs and other key organs. Girls typically reach puberty at a younger age than boys, noted Bell, hinting that they might develop more quickly in utero as well.

The researchers recovered little information on how well the remarkable infants did as time went on.

In a separate study published in the same issue of the journal, however, Dr. Susan Hintz of the Stanford University School of Medicine, in California, and her colleagues found a continuing high rate of developmental deficits -- such as blindness and cerebral palsy -- among babies born at less than 25 weeks gestation, despite recent progress that has been made in the care of pregnant women and preterm babies.

Approximately one in three babies survived at these young gestational ages, weighing an average of about 660 grams at birth, the team reported. At 18 to 22 months old, only about one of five survivors had little or no impairment in the growth or development of their brains or central nervous systems.

Bell and Zumbach, too, noted that most of the children in their registry for whom ongoing data is available continue to have health and learning troubles, and remain relatively short and underweight for their age.

The Iowa researchers emphasize that their findings should not "falsely raise the expectations" that tiny infants will survive, let alone thrive. "Since the birth of the first survivor below 400 grams in 1936, there have been something like 10 trillion babies born in the world who survived to go home with their parents, and we know of only a few more than 100 of these who weighed less than 400 grams," said Bell.



"Undoubtedly, there are more that have not yet made it to the Registry," he added. "In fact, I found another baby shortly after the article went to press. Patient #111 is not included in the paper, but he is the smallest boy to survive at 274 grams."

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