

Birthing trauma linked to diminished IQ

Baby boomers who lose the academic race with their siblings may want to look back to the womb for answers. A controversial new report suggests long, unproductive labor may marginally reduce a child's intellectual prowess.

Although many researchers have attempted to link intelligence to the birthing process, a new study suggests infants delivered after more than 12 hours of unproductive labor suffer impaired intellectual development, perhaps as a result of subtle brain damage.

Many first-time mothers labor for more than 12 hours. How long a physician allows a woman to labor should rest on whether the mother's contractions continue to move the baby into and through the birth canal, concludes Frederick J. Roemer who headed the new study. An obstetrician in East Cleveland, Ohio, Roemer likened a baby during labor to a nail entering a wall. Just as the nail's head can deform under a hammer's powerful blows if some obstruction prevents the metal fastener from progressing smoothly into the wall, so the baby's soft, vulnerable head may sustain injury if labor contractions unproductively slam it for hours against a bony impediment, Roemer says.

Roemer began his scientific quest by culling hospital obstetric records on white, middle-class infants born at a local hospital between 1952 and 1954. He focused on 30 infants delivered by cesarean section — surgical removal — after more than 12 hours of unproductive labor. These children were compared with a group of 40 younger siblings, each of whom had avoided the trauma of labor when their mother's physician elected to schedule cesarean deliveries.

When each of the children reached about 10 years of age, Roemer sent the parents and teachers a questionnaire to assess the youth's progress. The survey included a request for each child's scores on standardized intelligence tests.

Though Roemer acquired a mountain of data, he didn't seriously begin wading through it until he retired. He and biostatistician Douglas Y. Rowland of Case Western Reserve University in Cleveland have now found that younger siblings clearly outperformed older brothers and sisters on IQ tests.

In the May *OBSTETRICS AND GYNECOLOGY*, Roemer's team reports that scores for the 40 younger children averaged about 118 — a statistically significant 11 points higher than the 30 children who had experienced a traumatic birth. Records show that other white, middle-class children in that community scored about 110 on the same IQ tests, he adds.

More importantly, comparisons within families showed that 20 of the 30 birth-trauma children ranked lower on IQ tests

than one or more of their younger siblings — a finding that Roemer's team argues is not likely due to chance.

First-born children usually outperform their younger siblings on IQ tests and other academic measures, Roemer notes, perhaps because of the parental attention lavished on the temporarily "only" child. However, though 29 of 30 birth-trauma subjects were first-borns, they lagged behind their younger siblings on every measure, including graded "performance evaluations" conducted by their school. Roemer says these findings fit with the theory that prolonged and obstructed labor may harm intellectual development later in life.

Obstetrician Ronald A. Chez of the

University of South Florida College of Medicine in Tampa described the principal finding as "highly provocative." However, these "worthwhile" data "probably can't be replicated," he writes in an editorial accompanying the report by Roemer's team, because the 1950s' practices that led to the alleged brain trauma no longer confront most U.S. newborns. For instance, he argues, today's newborns stand to benefit from drugs that make labor less traumatic.

Roemer's team counters that the report's general message should indeed hold true for babies born in the 1990s — especially to women who opt for natural childbirth methods. The Cleveland researchers also believe their results argue for a timely decision to perform cesarean deliveries, especially after 12 hours of unproductive labor. — *K.A. Fackelmann*

Geography conspires against Bangladesh

As the deadly cyclone brewed in the Bay of Bengal last week, meteorologists succeeded in providing the citizens of Bangladesh a few days warning — enough time for millions of people to evacuate from lowland areas and islands in the country's eastern reaches. Yet precious hours of warning could not make up for the country's flood-prone geography and overpopulation, twin problems that elevated the disaster to epic proportions.

"The geography of the coast along the northern Bay of Bengal is the worst place in the world for typhoons to hit," says Robert Beard, a meteorologist at the U.S. Joint Typhoon Warning Center, located in Guam.

Situated at the mouth of the Ganges, Bangladesh is made largely of low-lying floodplains and deltas. Some one-third of the country lies less than 20 feet above sea level. Because of the river sediments deposited by the Ganges, the seafloor at the northern Bay of Bengal slopes very gradually away from the shore — a factor that combines with the shape of the coastline to funnel water inland up river channels during a cyclone, says Beard.

Packing sustained winds of greater than 155 miles per hour, last week's storm pushed a mountain of water more than 18-feet high toward the coastline, says meteorologist Frank H. Wells of the warning center. This so-called storm surge formed when wind friction built up a hill of water ahead of the cyclone. Waves on top of the surge may have crested 30 feet higher, says meteorologist Paul Knight of Pennsylvania State University in University Park.

Because of Bangladesh's flat topography, the surge traveled far inland, combining with rainwater to cause severe flooding. In a tragic testimony to the

water's power, the body of a man turned up 12 miles inland from his village, according to David Fredrick, Bangladesh desk officer for the U.S. Agency for International Development in Washington, D.C.

The cyclone intensified as it landed on April 30, making it particularly destructive, says Knight. If it had hit the U.S. coast, a storm of such magnitude would classify as a force-5 hurricane. The most recent such U.S. storm was Camille in 1969. Though called by different names, cyclones in the Indian Ocean, hurricanes in the Atlantic and typhoons in the Pacific all represent the same types of rotating storms, generated over warm tropical waters.

Meteorologists in Bangladesh forecasted the storm's path with enough time for the country to evacuate 3 million people, according to a spokesperson for the Bangladesh embassy in Washington, D.C. Still, the evacuation efforts could not reach remote islands, where many people lacked radios and received no advance warning.

With reports of more than 100,000 deaths, the recent storm classifies as the most deadly to hit Bangladesh since a slightly weaker cyclone in 1970, which killed an estimated 500,000 people. The difference in death tolls demonstrates the effectiveness of the early warning and evacuation system, instituted after the last storm, says Fredrick.

Yet even those gains could not prevent a tragic loss of life, due in part to the overpopulation that forces people to settle on dangerous islands and lowlands, says Kirk Talbott of the World Resources Institute in Washington, D.C. Only the size of Wisconsin, Bangladesh currently holds 115 million people, nearly half the size of the U.S. population. — *R. Monastersky*