Plastics chemical BPA common in 'preemie' ICU, study finds

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Banned in sippy cups and baby bottles, it's present in hospital equipment; health risk unclear.

(HealthDay)—Premature babies who spend their first few days of life in the neonatal intensive care unit may be exposed to a possibly harmful chemical widely used in the manufacture of hard plastics, new research says.

The chemical, bisphenol A (BPA), is used to make many of the ventilators, intravenous lines, catheters and other devices tiny babies need to stay alive in those first critical days.

BPA is believed to be an endocrine disruptor, which means it may interfere with the hormone system in humans. Some research has linked BPA with reproductive and developmental problems, including attention-deficit/hyperactivity disorder. Last July, the U.S. Food and Drug Administration banned BPA from baby bottles and sippy cups.

The lead author of the new study, published online Feb. 18 and in the March print issue of *Pediatrics*, stressed that her paper did not come to any conclusions regarding health effects of BPA.

"This was an exposure assessment study," said Susan Duty, an associate professor of nursing at Simmons School of Nursing and Health Sciences in Boston. "We did not set out to determine any health outcome so I cannot speak to health effects from these particular exposures."

Most human exposure to BPA comes through diet: BPA can leach into foods and beverages from the containers in which it is packaged.

In this study, though, that turned out not to be the case. BPA levels in urine samples taken before and after feeding (either breast-feeding or formula feeding) were the same in the 55 infants who participated in this study. All were premature newborns staying in a hospital neonatal intensive care unit (NICU).

But babies who needed four or more medical devices had 1.6 times higher BPA levels in their urine when compared to those who were exposed to three or fewer devices.

Respiratory devices were linked with higher BPA exposure than other devices.

And, although in all cases urine concentrations of BPA were lower than those cited as potentially harmful by the U.S. Environmental and Protection Agency, they were still 16 to 32 times higher than those seen in children from the general population, Duty said.

Also, she added, "there is controversy about the effect of low-dose BPA exposures because some studies of exposure during vulnerable time periods of child development report effects on behavior and executive function in children and shortened [anal-genital] distance in male offspring."

Duty pointed out that the particular NICU she studied had made "a conscious voluntary decision to choose products without BPA whenever possible and still we found these associations with BPA."

It's unclear if there are alternative ways to make the devices needed to keep tiny, vulnerable babies alive.

Sharon Wilkerson, dean of the Texas A&M Health

Science Center College of Nursing, cited one study that had found differences in exposure levels between hospitals, "suggesting that some products may be better than others."

On the other hand, BPA strengthens plastic and plays a cementing role.

"We don't want a catheter in the vein to come apart because that would be worse than the BPA," Wilkerson said. "There's a fine line of making sure that as we try and get people to use less BPA in the production of products, we don't jeopardize the outcome from that."

A group representing the chemical industry said the study is not cause for alarm.

"This study found that exposures to BPA from the use of life-saving medical equipment on premature infants in the NICU were low and well within safe limits established by regulators," said Steven Hentges, of the Polycarbonate/BPA Global Group at the American Chemistry Council.

In a council news release, Hentges added that "the BPA exposures for all of the infants in this study are short-term, limited to the time when life-saving medical treatment is necessary, and well below government-set safe intake limits for BPA, which are conservatively set."

A medical expert not involved with the study said more information is needed.

"Clearly, this study found more exposure but the question is what does that mean," said Dr. David Mendez, a neonatologist with Miami Children's Hospital in Florida. "We just don't know enough right now.

"If we find that BPA is a real player in the long-term health outcomes of babies, we can come up with safer ways to deliver nutrition, to deliver our oxygen," he added.

For now, study author Duty said, "the first priority must be to provide the medical care needed to help these infants survive their premature birth."

More information: The U.S. National Institutes of Environmental Health Sciences has more on BPA.