

Acute hypersensitivity reactions associated with inserting or flushing IV catheters is rarely reported. The acute onset of flushing in the patients described in this series of case reports suggests several possibilities, including hypersensitivity; the common, temporally associated exposures among the four patients were the insertion of a Landmark® midline catheter and flushing of the catheter with 0.9% sterile saline.

Possible sources for reactions include catheter components, intrinsic or extrinsic material on the inside or outside of the catheter, residual material associated with catheter sterilization or packaging, injectable fluids and medications, anatomic location of the catheter insertion, or insertion technique. However, none of these patients had received any IV medication before the reaction. Although all the patients had flushes with 0.9% saline, the type of flushes and IV fluids that they had received were the same as those that other patients had received or the same as those that they had received with other catheters before and after the reactions without problems; however, whether these other catheters were midline catheters is unknown.

The Landmark® catheter is the only midline catheter manufactured from Aquavene®. Latex, a material previously

known to have caused hypersensitivity reactions,^{2,3} is not a component of the catheter.

Reported reactions often have occurred during flushing, suggesting the cause of the reactions may be extrinsic to the catheter and is dislodged during flushing. Midline catheters are sterilized by irradiation, which excludes the possibility of residues from chemical disinfectants such as formaldehyde or ethylene oxide—compounds associated with hypersensitivity reactions.^{4,5} Allergens may adhere to the wall of the catheter or have a threshold that must be reached, as suggested by the delayed onset in the acute hypersensitivity-like reaction 20-30 minutes after insertion in one patient (patient 3)—the approximate time required for the catheter to become completely hydrated and the lumen partially opened. In addition, the hydration process may facilitate the release of the causative agent.

Because of the rare occurrence of acute hypersensitivity reactions associated with the insertion or flushing of IV catheters, the association between these reactions and one or more catheters may be difficult to recognize at any single institution and may depend on the frequency of use of the catheter. Further investigation is necessary to determine the cause of the reactions, the preva-

lence of such reactions, and whether these reactions occur with catheters made of other materials.^{1,6,7}

To determine whether these reactions are associated with the midline catheter, the manufacturer is working with FDA on further studies. Health-care workers who observe reactions associated with IV devices are encouraged to report their findings to the FDA Medwatch Program (telephone [800] 332-1088) and through their state health department to the CDC Hospital Infections Program, National Center for Infectious Diseases (telephone [404] 639-6413).

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†Use of trade names and commercial sources is for identification only and does not imply endorsement by the Public Health Service or the U.S. Department of Health and Human Services.

Nutritional Status of Children Participating in the Special Supplemental Nutrition Program for Women, Infants, and Children—United States, 1988-1991

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2 tables omitted

RECENT increases in the prevalence of overweight among school-aged children¹ and adults² in the United States have prompted concern about an increase in overweight among preschool-aged children and a possible association with the foods provided by the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). To assess and compare weight status and nutrient intake among WIC participants and other low-income children, CDC analyzed data from phase 1 of the Third National Health and Nutrition Examination Survey (NHANES III), 1988-1991. This report summarizes the results of this analysis, which indicate that foods provided by WIC are not associated with increased overweight among preschool-aged children.

CDC's NHANES III is a stratified multistage probability sample of the civilian, noninstitutionalized U.S. population aged ≥ 2 months. The survey consists of two 3-year nationally representative samples (phase 1, 1988-1991 and phase 2, 1991-1994) with oversampling of children aged 2 months-5 years. A standardized physical examination in a mobile examination center included a 24-hour dietary recall and measurements of recumbent length (children aged < 2 years for this analysis), stature (children aged ≥ 2 years), and weight.³

Weight status is defined as weight-for-height in relation to the National Center for Health Statistics (NCHS)/CDC reference growth curves.⁴ Mean Z-scores (i.e., the average number of standard deviations a child is from the NCHS/CDC reference mean) are presented for non-Hispanic whites, non-His-

panic blacks, and Mexican Americans aged 2-23 months and 24-59 months.* Mean intakes of energy, percentage of energy from fat, calcium, and calcium per 1000 kilocalories (kcal) also are presented for these subgroups. Data were analyzed by race/ethnicity because, among low-income preschool-aged children, some racial/ethnic groups have a higher prevalence of high weight-for-height than other groups.⁵

Among low-income ($\leq 185\%$ of the poverty level†) white and black children, differences in weight status among those who participated in WIC and those who did not participate were neither significant nor consistent. However, mean weight-for-height Z-scores were lower among Mexican American WIC participants than nonparticipants. Multivariate analyses indicate that when income is accounted for, the relation between

WIC and weight-for-height remains the same.

Nutrient intakes varied by WIC participation: although average energy intake was lower among WIC participants than non-WIC participants, both groups received approximately the recommended dietary allowance (RDA) for energy—a pattern consistent among racial/ethnic groups. In general, the percentage of energy obtained from consuming fat was higher for WIC participants than nonparticipants, and all groups aged 24-59 months consumed above the dietary guideline of 30% of energy from fat.⁷ Calcium intake per 1000 kcal of energy also was higher in general for WIC participants than nonparticipants. Total calcium intake generally was higher for WIC participants aged 24-59 months, but lower for those aged <2 years. Black participants consumed more calcium from milk than did nonparticipants. Mean calcium intake for all WIC participants was approximately the RDA.

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CDC Editorial Note: In 1972, the federal government established the WIC program following a determination of poor nutritional status among many low-income children in the United States.⁸ To participate in WIC, pregnant and postpartum women, infants, and children aged <5 years must meet income and nutritional risk criteria. The income criterion is determined by state agencies, but usually is not greater than 185% of the poverty level. Nutritional risk is defined as detrimental conditions detectable by biochemical or anthropometric measurements, other documented nutritionally related medical conditions, dietary deficiencies that impair health, or conditions (e.g., drug addiction) that increase the likelihood of inadequate nutritional patterns or nutritionally related medical problems. WIC provides nutri-

tion education, referrals to health services, and supplemental foods high in protein, iron, calcium, vitamin A, and vitamin C. In 1994, approximately 3.2 million children aged 1-4 years and approximately 40% of all babies born in the United States participated in WIC.⁹

In 1973, CDC, in collaboration with five states, initiated the Pediatric Nutrition Surveillance System (PedNSS) to continuously monitor the nutritional status of children who participate in publicly funded health and nutrition programs such as WIC. By 1990, this system had expanded to include 40 states, Puerto Rico, the District of Columbia, the Navajo Nation, and the Intertribal Council of Arizona. Each visit a child makes to a participating clinic generates a surveillance record that includes height and weight measurements. From 1980 through 1991, the prevalences of both low weight-for-height and high weight-for-height among white and black children participating in PedNSS remained stable at below the expected value of 5% (Mexican American children in PedNSS were not separated from other Hispanic children¹⁰). The 1990 PedNSS data are consistent with the finding that children who participate in WIC were not more overweight than other low-income children. In general, mean weight-for-height Z-scores from PedNSS were lower than the NHANES III mean values for WIC participants.

The findings in this report are subject to at least two limitations. First, the small sample sizes for some subgroups of WIC participants in the NHANES III data are associated with unstable estimates when based only on phase 1 data. Second, children who were not participating in WIC may not have been at nutritional risk and therefore may not have been eligible for participation in WIC. Thus, nutrient intake data differences between WIC and non-WIC participants who are WIC eligible may actually be greater than that observed in this analysis.

WIC foods provide necessary nutrients without contributing to overweight. However, overweight remains a public health problem in the United States. Health departments and other agencies that administer WIC should continue to reinforce the Dietary Guidelines for Americans,⁷ emphasizing the importance of diets lower in fat (for those aged ≥ 2 years) and higher in calcium through consumption of foods such as low-fat dairy products.

References

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*Numbers for other racial/ethnic groups were too small for meaningful analysis.

†Poverty statistics are based on a definition originated by the Social Security Administration in 1964, subsequently modified by federal interagency committees in 1969 and 1980, and prescribed by the Office of Management and Budget as the standard to be used by federal agencies for statistical purposes.

Course in Hospital Epidemiology

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CDC, the Society for Healthcare Epidemiology of America (SHEA), and the American Hospital Association will co-sponsor a hospital epidemiology training course May 18-21, 1996, in New York City. The course, designed for infectious

disease fellows, new hospital epidemiologists, and infection-control practitioners, provides hands-on exercises to improve skills in detection, investigation, and control of epidemiologic problems encountered in the hospital setting and lectures and seminars on fundamen-

tal aspects of hospital epidemiology.

Additional information is available from SHEA Meetings Department, 875 Kings Highway, Suite 200, Woodbury, NJ 08095-3172; telephone (609) 845-1720; fax (609) 853-0411.