Maternal & Infant Nutrition Briefs

May/June 2000

A research-based newsletter prepared by the University of California for professionals interested in maternal and infant nutrition

Using a Diet History to Screen for Iron Deficiency Anemia

Although the prevalence of iron deficiency anemia (IDA) has dropped in the past 30 years, about 10% of urban minority children, ages 12-36 months, are anemic due to low iron stores. Preventing, identifying, and treating IDA is important to avoid adverse effects on child development and health. The American Academy of Pediatrics (AAP) recommends screening for IDA at 6-12 months and again at 15 months to 4 years. If hemoglobin values are low, then providers should give iron for a month and check for a response to therapy to diagnose IDA. Because the feasibility of this practice is low, the Centers for Disease Control (CDC) and the Institute of Medicine have recommended testing an alternative approach, using first a diet history to identify children at-risk and then following-up with more expensive blood tests. The purpose of this study was to evaluate the performance of a parent-completed diet history form as a first step in identifying children at-risk of IDA.

The ideal diet history screening tool is both sensitive and specific. Here, high sensitivity (> 95%) means that most of the children who are truly anemic due to iron deficiency would be identified as "at-risk" and targeted for follow-up blood tests. High specificity (> 50%) means that many children who do not have IDA would be identified as "not at-risk" and therefore, avoid unnecessary blood-testing. Anemia was defined as a hemoglobin value < 11.0 gm/dL. Iron deficiency was defined as serum ferritin < 10 µg/L or mean corpuscular volume < 70 fL and red cell distribution width > 14.5%.

The researchers recruited subjects, ages 9-30 months (n=282), from the waiting rooms of inner-city clinics in Baltimore. Children were eligible if they had been scheduled for routine venous blood testing for anemia. While waiting for the doctor, the parents completed 15 items related to diet and 14 items, to individual and family health history. Children were identified as being at-risk, if parents responded positively to any of the 29 items. Ninety-one percent of the sample was African American, and 63% was currently receiving WIC.

Seven percent of the children had iron deficiency without anemia and 8%, with anemia (IDA). The prevalence of anemia due to causes other than iron deficiency was 27%. All children had at least one at-risk response on the tool. Overall, the sensitivity of the items was relatively high, but specificity was low. For example, among dietary items, drinking > 2 glasses of juice a day had a sensitivity of 71% but a specificity of only 21%. A composite measure of solid food intake, based on < 5 servings per week from each of the five food groups, had a sensitivity of 91% and a specificity of 29%. Items tapping into maternal history of anemia had a sensitivity of 64% and a specificity of 37%. Performance of the tool might have been better had the researchers included biochemical, rather than only parent-reported, measures of the child's current health status. Infections can increase serum ferritin levels, thus leading to misclassification of a child as "anemic due to other causes" rather than "anemic due to iron." Also, the sample size was too small to adequately test the performance of some of the 29 items.

More research is needed before a two-stage approach, using a diet history, can be implemented to screen for IDA in urban, low-income children.

Source: Bogan, D.L., Duggan A.K., Dover, G.J., Wilson M.H. 2000. Screening for iron deficiency anemia by dietary history in a high-risk population. Pediatrics 105 (6): 1254-1259

The Truth about "Morning Sickness"

Although myths about "morning sickness" abound, very little is actually documented about patterns of nausea and vomiting during pregnancy. This information is needed before clinical trials evaluating remedies can be designed. Thus, the purpose of this study was to describe patterns of nausea and vomiting during pregnancy and to explore variables associated with these patterns.

The study was carried out in Canada, where 160 expectant mothers kept daily and weekly records of their bouts with nausea and vomiting throughout their pregnancies. Women who experienced hyperemesis gravidarum or who later miscarried their babies were excluded from the study. The questionnaire enabled women to record both the frequency and intensity of the nausea, using different types of scales.

The results showed that 74% of the women experienced some nausea and 37%, reported vomiting. Although nausea first occurred on the average at 5.7 weeks of gestation, some women reported nausea as early as the first week after conception. The incidence of nausea and vomiting peaked around 11 weeks of gestation and had resolved by 14 weeks for 50% of the women. However, morning sickness persisted beyond 22 weeks of gestation for about 10% of the women. About 80% of the women reported that "morning sickness" occurred throughout the entire day; less than 2% had nausea and vomiting in the morning only. Patterns of nausea and vomiting were not associated with sex of the baby or birth weight. Mothers with less education were significantly more likely to report nausea and vomiting and had higher intensity scores than more educated mothers. Since the nausea scales have been used previously with cancer patients undergoing chemotherapy, the researchers concluded that the intensity of nausea experienced by these women was on the par with that of cancer patients taking moderately nausea-producing medications. The most effective remedies for nausea and vomiting included dry foods (63.5%), rest (60%), and clear liquids or carbonated beverages (52%).

The sample was very homogeneous (98% white, 97% married, 80% with college education

or more). Thus, ability to explore lifestyle and other factors related to patterns of nausea and vomiting was limited. A commentary on the role of nausea and vomiting in early pregnancy suggests that its effect on reducing maternal energy intake may be beneficial in for placental development and later fetal growth. More research is needed on factors and outcomes related to nausea and vomiting during pregnancy, particularly in different ethnic groups. Meanwhile, the time has probably come to stop calling this phenomenon “morning sickness”.

Source: Lacroix r., Eason E., Melzack R. 2000. Nausea and vomiting during pregnancy: a prospective study of its frequency, intensity, and patterns of change. Am J Obstet Gynecol 182: 931-7.
Huxley R.R. 2000. Nausea and vomiting in early pregnancy: its role in placental development Obstet Gynecol 95: 779-82

Herbs and Kids Don’t Mix

The number of children given herbal remedies is speculative, but data from a mail survey suggest that about 11% of U.S. children take some form of alternative medicine. With increasing levels of education, parents are more likely to give their children alternative, as well as traditional, medicine. For anyone who has recently walked through a pharmacy, the projection that herbal therapies will outpace vitamin sales in 5 years and create a $7 billion-annual market by 2003 should come as no surprise. Clearly, health providers need to consider the implications of alternative therapies for their patients, particularly infants and young children.

One of the main concerns about herbal remedies is that very few well-controlled clinical trials have been conducted in children. Most of the information about products in children comes from case studies and anecdotal reports. Even for herbal therapies that seem to be tolerated in children, rigorous scientific testing is lacking. Another concern is lack of product uniformity and purity. In some cases, aspirin or other medications, herbs other than the desired ingredient, or pesticides have been found in the products. Toxicity is difficult to predict, given this variability.

A recent article in the Journal of Pediatrics recommends that children under 3 years of age not be given any herbal therapies, with the possible exception of chamomile tea for colic. The list of herbal products potentially associated with toxicity in children is long and includes the following: black alder, black cohosh, blessed thistle, buckthorn bark, pokeweed or pokeroot, aconite, bitterroot, blue cohosh, chickweed (in infants), giseng, hawthorn, khat, licorice, Lobelia spp, ma huang, yohimbe, borage, chaparral, coltsfoot, comfrey, germander, Heliotropium spp, Pau d’ Arco, Petasites hybridus, Senecio spp, Sophora flavescens, Acorus calamus, Aristolochia spp, Germanium spp, pennyroyal, rue, podophyllum, kava, willow bark, bearberry, birch bark, asafetida, life root, skullcap, and kombucha. Health providers working with children should be explore potential use by asking parents open-ended questions about remedies used for common childhood ailments and probing more about new symptoms where no other cause of illness is apparent. Providers also need to keep abreast of new information related to herbal products and may want to consult a government web site, http://vm.cfsan.fda.gov/~dms/aems.html. This web site can help providers search for reports of toxicity related to specific ingredients, as well as post their own observations.

Source: Buck ML, Michel RS 2000. Talking with families about herbal therapoies. J. Pediatr. 136: 673-8

Evaluating Postpartum Home Visits vs. Clinic Follow-up

In 1998, a federal law took effect mandating insurance coverage for 48 hours of hospital care following uncomplicated vaginal deliveries. However, most women continue to leave the hospital within 48 hours. Since many mothers do not experience problems until the third or fourth day postpartum, national guidelines recommend a follow-up visit at 3-4 days postpartum. Home visits are usually more expensive but may yield better outcomes than brief clinic visits. The purpose of this study was to compare maternal and newborn outcomes in a population of low-risk women, randomized to receive either a home visit or clinic follow-up at 3-4 days postpartum.

The study was conducted among 1163 low-risk mother-infant pairs, who received care through Kaiser-Permanente in northern California. The home visits involved an hour examination and anticipatory guidance provided in the mother's home by either a registered or public health nurse. The clinic visits involved a 20-minute examination of the baby by a pediatrician or nurse practitioner. Eligibility for the study was strictly limited to low-risk cases. Subjects were excluded for low birth weight, high birth weight, medical problems in the mother or baby, maternal age < 14 (or 15-17 without parent consent), positive toxicology screen for drugs, non-English speaking, or not accessible by phone.

No statistically significant differences between the groups were observed in rates of re-hospitalization, urgent clinic visits, maternal depression, or breastfeeding discontinuation within the first two weeks. However, mothers were significantly more satisfied with the care received through the home visits than the clinic follow-up. Average cost for the home visit was $255, whereas cost of the clinic visit was $120 for the baby (additional $82 for the mother). A closer look at breastfeeding discontinuation rates reveals a nonsignificant trend towards a lower risk of early termination in the home visit group (18%) than in the clinic follow-up group (22%), $p < 0.10$. Since the home visit group had a greater proportion of women who had not finished high school, a bias existed that might not have been sufficiently corrected for in the study. The home visit nurses had received some breastfeeding training but were apparently not certified lactation educators or consultants. More intensive lactation training and support delivered in the home environment might have tipped the balance in favor of better outcomes through home visits.

Source: Lieu TA, Braveman PA, Escobar GJ, Fisher AF, Jensvold NG, Capra AM. 2000. A randomized comapraison of home and clinic follow-up visits after early postpartum hospital discharge. Pediatrics 105: 1058-1065.

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