Chapter 6 Citations

1. **Adverse Effects of Aspirin, Acetaminophen, and Ibuprofen on Immune Function, Viral Shedding, and Clinical Status in Rhinovirus-Infected Volunteers**

Abstract

"A double-blind, placebo-controlled trial was conducted to study the effects of over-the-counter analgesic/antipyretic medications on virus shedding, immune response, and clinical status in the common cold. Sixty healthy volunteers were challenged intranasally with rhinovirus type 2 and randomized to one of four treatment arms: aspirin, acetaminophen, ibuprofen, or placebo. Fifty-six volunteers were successfully infected and shed virus on at least 4 days after challenge. Virus shedding, antibody levels, clinical symptoms and signs, and blood leukocyte levels were carefully monitored. Use of aspirin and acetaminophen was associated with suppression of serum neutralizing antibody response (P less than .05 vs. placebo) and increased nasal symptoms and signs (P less than .05 vs. placebo). A concomitant rise in circulating monocytes suggested that the suppression of antibody response may be mediated through drug effects on monocytes and/or mononuclear phagocytes. There were no significant differences in viral shedding among the four groups, but a trend toward longer duration of virus shedding was observed in the aspirin and acetaminophen groups."

Links

http://www.ncbi.nlm.nih.gov/pubmed/2172402

References

Burgess, Jeff. "Adverse Effects of Aspirin, Acetaminophen, and Ibuprofen on Immune Function, Viral Shedding, and Clinical Status in Rhinovirus-infected Volunteers." Annals of Emergency Medicine 20.7 (1991): 823.

2. **Are Well-child Visits a Risk Factor for Subsequent InfluenzaLike-Illness Visits?**

Abstract

"To determine whether well-child visits are a risk factor for subsequent influenza-like illness (ILI) visits within a child's family.

DESIGN:

Retrospective cohort.

METHODS:

Using data from the Medical Expenditure Panel Survey from the years 1996-2008, we identified 84,595 families. For each family, we determined those weeks in which a well-child visit or an ILI visit occurred. We identified 23,776 well-child-visit weeks and 97,250 ILI-visit weeks. We fitted a logistic regression model, where the binary dependent variable indicated an ILI clinic visit in a particular week. Independent variables included binary indicators to denote a well-child visit in the concurrent week or one of the previous 2 weeks, the occurrence of the ILI visit during the influenza season, and the presence of children in the family in each of the age groups 0-3, 4-7, and 8-17 years. Socioeconomic variables were also included. We also estimated the overall cost of well-child-exam-related ILI using data from 2008.

RESULTS:

We found that an ILI office visit by a family member was positively associated with a well-child visit in the same or one of the previous 2 weeks (odds ratio, 1.54). This additional risk translates to potentially 778,974 excess cases of ILI per year in the United States, with a cost of $500 million annually.

CONCLUSIONS:

Our results should encourage ambulatory clinics to strictly enforce infection control recommendations. In addition, clinics could consider time-shifting of well-child visits so as not to coincide with the peak of the influenza season."

Links

http://www.ncbi.nlm.nih.gov/pubmed/24521589

References

Simmering, Jacob E., Linnea A. Polgreen, Joseph E. Cavanaugh, and Philip M. Polgreen. "Are Well-Child Visits a Risk Factor for Subsequent Influenza-Like Illness Visits?" Infect Control Hosp Epidemiol Infection Control & Hospital Epidemiology 35.03 (2014): 251-56.

3. **Association between Breastfeeding and Intelligence, Educational Attainment, and Income at 30 Years of Age: A Prospective Birth Cohort Study from Brazil**

Abstract

"**Background**

Breastfeeding has clear short-term benefits, but its long-term consequences on human capital are yet to be established. We aimed to assess whether breastfeeding duration was associated with intelligence quotient (IQ), years of schooling, and income at the age of 30 years, in a setting where no strong social patterning of breastfeeding exists.

Methods

A prospective, population-based birth cohort study of neonates was launched in 1982 in Pelotas, Brazil. Information about breastfeeding was recorded in early childhood. At 30 years of age, we studied the IQ (Wechsler Adult Intelligence Scale, 3rd version), educational attainment, and income of the participants. For the analyses, we used multiple linear regression with adjustment for ten confounding variables and the G-formula.

Findings

From June 4, 2012, to Feb 28, 2013, of the 5914 neonates enrolled, information about IQ and breastfeeding duration was available for 3493 participants. In the crude and adjusted analyses, the durations of total breastfeeding and predominant breastfeeding (breastfeeding as the main form of nutrition with some other foods) were positively associated with IQ, educational attainment, and income. We identified dose-response associations with breastfeeding duration for IQ and educational attainment. In the confounder-adjusted analysis, participants who were breastfed for 12 months or more had higher IQ scores (difference of 3·76 points, 95% CI 2·20–5·33), more years of education (0·91 years, 0·42–1·40), and higher monthly incomes (341·0 Brazilian reals, 93·8–588·3) than did those who were breastfed for less than 1 month. The results of our mediation analysis suggested that IQ was responsible for 72% of the effect on income.

Interpretation

Breastfeeding is associated with improved performance in intelligence tests 30 years later, and might have an important effect in real life, by increasing educational attainment and income in adulthood."

Links

http://www.thelancet.com/journals/langlo/article/PIIS2214-109X(15)70002-1/abstract

References

Victora, Cesar G., Bernardo Lessa Horta, Christian Loret De Mola, Luciana Quevedo, Ricardo Tavares Pinheiro, Denise P. Gigante, Helen Gonçalves, and Fernando C. Barros. "Association between Breastfeeding and Intelligence, Educational Attainment, and Income at 30 Years of Age: A Prospective Birth Cohort Study from Brazil." The Lancet Global Health 3.4 (2015).

4**. Breastfeeding and Health Outcomes**

Article

"I HAVE THE GOOD FORTUNE to work at the Agency for Health Care Research and Quality (AHRQ), where I have the opportunity to help translate numbers and evidence into meaningful action to improve health and health care. In my work I am privileged to support the U.S. Preventive Services Task Force and collaborate with and fund researchers in primary care. The mission of the Agency is to improve the quality, safety, effectiveness, and efficiency of health care for all Americans. Today, I'm going to talk about the effects of breastfeeding on the health of women and children.

When we deconstruct breastfeeding to identify its effects on individual healthcare outcomes, we lose the bigger picture. Breastfeeding is a dynamic, complex, living practice—a multidimensional, relational system involving not only a mother and child, but their entire environment. I generally approach breastfeeding as a means of optimizing a child's chances for reaching his or her full potential. This sometimes creates conflict, because breastfeeding is not the magic guarantee for well-being that physicians and policy makers sometimes want. It is also important to remember that an individual family, making a decision about helping the development of a child, has a perspective on breastfeeding that is very different from the viewpoint of the population at large and of the policy makers who monitor public concerns.

To set a foundation for this summit, I am pleased to be able to summarize a report published in 2007 on outcomes of breastfeeding on maternal and infant health in developed countries that was prepared for AHRQ by the Evidence-Based Practice Center (EPC) of the Tufts–New England Medical Center, Boston, MA.

The EPC program was established by AHRQ in 1997 to review all relevant scientific literature on clinical, behavioral, and organization and financing topics to produce evidence reports and technology assessments. EPC evidence reports are based on rigorous, comprehensive syntheses and analyses of the scientific literature. There are currently 14 centers around the United States and Canada that are commissioned to systematically review the evidence surrounding a

particular practice. The methodology used by the EPC is very explicit; its documentation is very detailed. The EPCs collaborate broadly with experts around the world in various fields to produce reports on aspects of healthcare practice and outcomes that policy makers as well as clinicians use to guide health care.

The EPC's 2007 report on breastfeeding in maternal and infant health summarized evidence through May 2006 from different types of studies in the English-language literature, including randomized controlled trials and controlled observational studies. Over 9,000 articles were considered for this report. Given the breath of literature, the EPC relied on previously conducted systematic reviews and meta-analysis and at times conducted new and updated meta-analysis as well. Every study was examined and graded for its methodologic quality, and some studies of poorer quality were discarded.

The 2007 EPC report concluded that breastfeeding provided short-term benefits for infants in terms of a lower frequency of common illnesses, including ear infections and vomiting and diarrhea. The evidence suggests that for every six children who are breastfed exclusively for the first 6 months of life, one of them will not have an ear infection that he or she would otherwise have had. That means that of the approximately 4 million infants born in the United States every year, 2 million would be expected to have an ear infection in the first 6 months of life. If breastfeeding rates in America were increased to 80% of children, there would be 300,000 fewer ear infections than there now are. Among formula-fed infants the incidence of vomiting and diarrhea is nearly 100% in the first year of life, as compared with such illness in fewer than half of breastfed children.

The report found that the benefits are not only for common illnesses that occur in infancy, but also for rarer but serious illnesses. The rates of hospitalizations for pneumonia and severe lower respiratory tract infection are lower among breastfed infants than among those not breastfed. A meta-analysis found a significant inverse association between breastfeeding and sudden infant death syndrome (SIDS).

The benefits of breastfeeding are not limited to infancy; they extend into childhood and even into adulthood. A history of breastfeeding is clearly associated with decreased rates of common conditions, including eczema and obesity, and decreased rates of serious diseases, including type 2 diabetes and childhood leukemias.

When considering the benefits of breastfeeding, or more accurately the risks of not breastfeeding, I think it is helpful to put the numbers into context. [Note that slides presented along with this talk included odds ratios taken from the 2007 EPC report.]

To help provide this context, I want to introduce the concept of the “number needed to treat,” which refers to the number of people to whom a treatment or technique must be applied in order for it to make an effective difference in health.

Suppose a patient comes into my office with a sprained ankle, and I decide to prescribe a nonsteroidal anti-inflammatory drug (NSAID) such as naproxen or ibuprofen to ease the patient's pain. Most of us assume that if we take a pain killer we are almost certainly going to get good pain relief. If you look at the evidence for this treatment, however, you find that NSAIDs provide effective relief for only one of every two people; 50% of the people for whom it is used do not get significant relief. We say therefore that on average we need to treat two people for one person to get good relief. NSAIDS for pain relief from sprains has a number-needed-to-treat of 2.

The effects of antibiotics on ear infections are likewise surprising, with only one in seven children in the United States having a clinically significant benefit from treatment. Similarly, treatment of a high cholesterol level with statin medications prevents a heart attack in only one of about 70 people. Yet I am a strong proponent of treating high cholesterol levels with statins because from the viewpoint of population health, it is one of the most effective things we can do to help people live longer and healthier lives.

When we move from treatment to prevention, the numbers of people who must be screened in order to produce a benefit are staggering. Screening for colon cancer is one of the most important screening tests we can do in America, yet as many as 1,500 people must undergo colonoscopy to stop one person from dying of colon cancer. For mammography, that ratio rises to a conservative number of 2,300 women who must be screened to prevent one death from breast cancer, with some data suggesting that the ratio is closer to 5,000 to 1. We should keep these numbers in mind in considering the evidence for breastfeeding.

I did some back of the envelope calculations about the number needed to breastfeed to avoid a couple of specific conditions. I freely admit that skilled biostatisticians and my colleagues at AHRQ would have concerns about my methods, and I ask you not to take these numbers as exact truths. I think they are good enough, however, to get us in the right ballpark and give us some perspective on the health benefits of breastfeeding.

To prevent one case of acute otitis media in an infant less than 6 months of age, approximately six children would need to be exclusively breastfed for the first 6 months. To prevent one case of vomiting and diarrhea, the number needing to breastfeed is 2.5.

Clearly, decisions about infant feeding are influenced by more than the potential health benefits for the infant. It is good to know, however, that when compared to other common treatments and preventive health choices we make, breastfeeding is very impressive. And, of course, the act of breastfeeding provides all of these benefits, not simply protection for ear infections or reducing the chances of having diabetes or preventing SIDS or preventing asthma. We need to remind ourselves not to fall into the reductionist trap when considering the health effects of breastfeeding. Breastfeeding optimizes a child's chances of reaching his or her full potential.

The review of evidence in preparing the EPC's 2007 report did not focus on children born prematurely, but on full-term infants. However, it did find a 5% absolute risk reduction for necrotizing enterocolitis among premature infants who received breastmilk.

Looking more deeply into the report, it also showed an inverse association between breastfeeding and the incidences of asthma and type 1 diabetes, but added that more evidence was needed to be conclusive about this. The report also concluded that the available evidence suggests that breastfeeding is not associated with cognitive development in full-term infants and children, although this is a very difficult area because differences in cognition can be relatively subtle, and huge numbers of children would need to be followed to find small but important effects.

Turning to the other side of the breastfeeding partnership, health benefits accrue to the mother as well as to the infant. Clear evidence was found for an inverse association of breastfeeding with breast cancer, and a strong inverse association was also found for breastfeeding and both ovarian cancer and type 2 diabetes, exclusive of gestational diabetes during pregnancy.

Although I have not had time to completely update the 2007 report for the 1,200 studies that have come out since it was published, a study that was reported in the July 2009 issue of the *Journal of Obstetrics and Gynecology* and that applied multivariate modeling to a large data set obtained from American women found that women who breastfed for 12 or more months across their lifetimes had lower rates of high blood pressure, hypercholesterolemia, diabetes, and known cardiovascular disease than did women who didn't breastfeed. More data and evidence are needed about this and other maternal outcomes of breastfeeding.

The team of investigators at the EPC who prepared the 2007 report had no preconceived ideas about the effects of breastfeeding. They were not advocates for or against either breastfeeding or formula feeding, and in my opinion they were conservative in their methods and their conclusions in the body of the report and a bit liberal in their writing of the executive summary.

What does the evidence say about exclusive breastfeeding? Because of changes in the way clinical studies have been done, we are getting better definitions of breastfeeding and more identification of exclusive breastfeeding as opposed to partial breastfeeding and formula feeding. And, in general, exclusive breastfeeding has produced better health outcomes than mixed feeding, which in turn has produced better health outcomes than formula feeding. When such data have been available, the benefits appear to keep increasing past 1 year of age and into the 18-month range.

On the basis of the 2007 EPC report, the U.S. Preventive Services Task Force conducted a second systematic review of the evidence about breastfeeding promotion and support in developed countries. It concluded that the actions of the healthcare system in relation to breastfeeding do matter. The Task Force recommends primary care clinicians get involved and support women in breastfeeding. It concluded that what physicians and the health system do

before and around the time of delivery makes a difference in the initiation, exclusivity, and duration of breastfeeding. It also matters what we do when women and their infants leave the formal healthcare system after birth and return to the community."

Links

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2998971/

References

Meyers, David. "Breastfeeding and Health Outcomes." Breastfeeding Medicine 4.S1 (2009)

5. **Breastfeeding and Reduced Risk of Sudden Infant Death Syndrome: A Meta-analysis**

Abstract

"**Context:**

Benefits of breastfeeding include lower risk of postneonatal mortality. However, it is unclear whether breastfeeding specifically lowers sudden infant death syndrome (SIDS) risk, because study results have been conflicting.

Objective:

To perform a meta-analysis to measure the association between breastfeeding and SIDS.

Methods:

We identified 288 studies with data on breastfeeding and SIDS through a Medline search (1966–2009), review articles, and meta-analyses. Twenty-four original case-control studies were identified that provided data on the relationship between breastfeeding and SIDS risk. Two teams of 2 reviewers evaluated study quality according to preset criteria; 6 studies were excluded, which resulted in 18 studies for analysis. Univariable and multivariable odds ratios were extracted. A summary odds ratio (SOR) was calculated for the odds ratios by using the fixed-effect and random-effect inverse-variance methods of meta-analysis. The Breslow-Day test for heterogeneity was performed.

Results:

For infants who received any amount of breast milk for any duration, the univariable SOR was 0.40 (95% confidence interval [CI]: 0.35–0.44), and the multivariable SOR was 0.55 (95% CI: 0.44–0.69). For any breastfeeding at 2 months of age or older, the univariable SOR was 0.38 (95% CI: 0.27–0.54). The univariable SOR for exclusive breastfeeding of any duration was 0.27 (95% CI: 0.24–0.31).

Conclusions:

Breastfeeding is protective against SIDS, and this effect is stronger when breastfeeding is exclusive. The recommendation to breastfeed infants should be included with other SIDS risk-reduction messages to both reduce the risk of SIDS and promote breastfeeding for its many other infant and maternal health benefits."

Links

http://pediatrics.aappublications.org/content/early/2011/06/08/peds.2010-3000

References

Vennemann, M., J. Thompson, K. Tanabe, R. Moon, and F. Hauck. "Breastfeeding and Reduced Risk of Sudden Infant Death Syndrome: A Meta-analysis." Das Gesundheitswesen Gesundheitswesen 72.08/09 (2010)

6. **Consensus Communication on Early Peanut Introduction and the Prevention of Peanut Allergy in High-risk Infants**

Abstract

"The purpose of this brief communication is to highlight emerging evidence to existing guidelines regarding potential benefits of supporting early, rather than delayed, peanut introduction during the period of complementary food introduction in infants. This document should be considered as interim guidance based on consensus among the following organizations: American Academy of Allergy, Asthma & Immunology, American Academy of Pediatrics, American College of Allergy, Asthma & Immunology, Australasian Society of Clinical Immunology and Allergy, Canadian Society of Allergy and Clinical Immunology, European Academy of Allergy and Clinical Immunology, Israel Association of Allergy and Clinical Immunology, Japanese Society for Allergology, Society for Pediatric Dermatology, and World Allergy Organization. More formal guidelines regarding early-life, complementary feeding practices and the risk of allergy development will follow in the next year from the

National Institute of Allergy and Infectious Diseases-sponsored Working Group and the European Academy of Allergy and Clinical Immunology."

Links

http://www.ncbi.nlm.nih.gov/pubmed/26122934

References

Fleischer, David M., Scott Sicherer, Matthew Greenhawt, Dianne Campbell, Edmond S. Chan, Antonella Muraro, Susanne Halken, Yitzhak Katz, Motohiro Ebisawa, Lawrence Eichenfield, and Hugh Sampson. "Consensus Communication on Early Peanut Introduction and the Prevention of Peanut Allergy in High-risk Infants." World Allergy Organ J World Allergy Organization Journal 8.1 (2015)

7. **Early Diet Impacts Infant Rhesus Gut Microbiome, Immunity, and Metabolism**

Abstract

"Epidemiological research has indicated a relationship between infant formula feeding and increased risk of chronic diseases later in life including obesity, type-2 diabetes, and cardiovascular disease. The present study used an infant rhesus monkey model to compare the comprehensive metabolic implications of formula- and breast-feeding practices using NMR spectroscopy to characterize metabolite fingerprints from urine and serum, in combination with anthropometric measurements, fecal microbial profiling, and cytokine measurements. Here we show that formula-fed infants are larger than their breast-fed counterparts and have a different gut microbiome that includes higher levels of bacteria from the *Ruminococcus* genus and lower levels of bacteria from the *Lactobacillus* genus. In addition, formula-fed infants have higher serum insulin coupled with higher amino acid levels, while amino acid degradation products were higher in breast-fed infants. Increases in serum and urine galactose and urine galactitol were observed in the second month of life in formula-fed infants, along with higher levels of TNFα, IFN-γ, IL-1β, IL-4, and other cytokines and growth factors at week 4. These results demonstrate that metabolic and gut microbiome development of formula-fed infants is different from breast-fed infants and that the choice of infant feeding may hold future health consequences."

Links

http://pubs.acs.org/doi/abs/10.1021/pr4001702

References

O'Sullivan, Aifric, Xuan He, Elizabeth M. S. Mcniven, Neill W. Haggarty, Bo Lönnerdal, and Carolyn M. Slupsky. "Early Diet Impacts Infant Rhesus Gut Microbiome, Immunity, and Metabolism." J. Proteome Res. Journal of Proteome Research 12.6 (2013): 2833-845.

8. **Estimating the Life Course of Influenza A (H3N2) Antibody Responses from CrossSectional Data**

Abstract

"The immunity of a host population against specific influenza A strains can influence a number of important biological processes, from the emergence of new virus strains to the effectiveness of vaccination programmes. However, the development of an individual's long-lived antibody response to influenza A over the course of a lifetime remains poorly understood. Accurately describing this immunological process requires a fundamental understanding of how the mechanisms of boosting and cross-reactivity respond to repeated infections. Establishing the contribution of such mechanisms to antibody titres remains challenging because the aggregate effect of immune responses over a lifetime are rarely observed directly. To uncover the aggregate effect of multiple influenza infections, we developed a mechanistic model capturing both past infections and subsequent antibody responses. We estimated parameters of the model using cross-sectional antibody titres to nine different strains spanning 40 years of circulation of influenza A(H3N2) in southern China. We found that "antigenic seniority" and quickly decaying cross-reactivity were important components of the immune response, suggesting that the order in which individuals were infected with influenza strains shaped observed neutralisation titres to a particular virus. We also obtained estimates of the frequency and age distribution of influenza infection, which indicate that although infections became less frequent as individuals progressed through childhood and young adulthood, they occurred at similar rates for individuals above age 30 y. By establishing what are likely to be important mechanisms driving epochal trends in population immunity, we also identified key directions for future studies. In particular, our results highlight the need for longitudinal samples that are tested against multiple historical strains. This could lead to a better understanding of how, over the course of a lifetime, fast, transient antibody dynamics combine with the longer-term immune responses considered here"

Links

http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1002082

References

Kucharski, Adam J., Justin Lessler, Jonathan M. Read, Huachen Zhu, Chao Qiang Jiang, Yi Guan, Derek A. T. Cummings, and Steven Riley. "Estimating the Life Course of Influenza A(H3N2) Antibody Responses from Cross-Sectional Data." PLOS Biology PLoS Biol 13.3 (2015)

9. **Glyphosate, pathways to modern diseases II: Celiac sprue and gluten intolerance.**

Abstract

"Celiac disease, and, more generally, gluten intolerance, is a growing problem worldwide, but especially in North America and Europe, where an estimated 5% of the population now suffers from it. Symptoms include nausea, diarrhea, skin rashes, macrocytic anemia and depression. It is a multifactorial disease associated with numerous nutritional deficiencies as well as reproductive issues and increased risk to thyroid disease, kidney failure and

cancer. Here, we propose that glyphosate, the active ingredient in the herbicide, Roundup(®), is the most important causal factor in this epidemic. Fish exposed to glyphosate develop digestive problems that are reminiscent of celiac disease. Celiac disease is associated with imbalances in gut bacteria that can be fully explained by the known effects of glyphosate on gut bacteria. Characteristics of celiac disease point to impairment in many cytochrome P450 enzymes, which are involved with detoxifying environmental toxins, activating vitamin D3, catabolizing vitamin A, and maintaining bile acid production and sulfate supplies to the gut. Glyphosate is known to inhibit cytochrome P450 enzymes. Deficiencies in iron, cobalt, molybdenum, copper and other rare metals associated with celiac disease can be attributed to glyphosate's strong ability to chelate these elements. Deficiencies in tryptophan, tyrosine, methionine and selenomethionine associated with celiac disease match glyphosate's known depletion of these amino acids. Celiac disease patients have an increased risk to non-Hodgkin's lymphoma, which has also been implicated in glyphosate exposure. Reproductive issues associated with celiac disease, such as infertility, miscarriages, and birth defects, can also be explained by glyphosate. Glyphosate residues in wheat and other crops are likely increasing recently due to the growing practice of crop desiccation just prior to the harvest. We argue that the practice of "ripening" sugar cane with glyphosate may explain the recent surge in kidney failure among agricultural workers in Central America. We conclude with a plea to governments to reconsider policies regarding the safety of glyphosate residues in foods."

Links

http://www.ncbi.nlm.nih.gov/pubmed/24678255

References

Samsel, Anthony, and Stephanie Seneff. "Glyphosate, Pathways to Modern Diseases II: Celiac Sprue and Gluten Intolerance." Interdisciplinary Toxicology 6.4 (2013)

10. **Primary prevention of allergic disease through nutritional interventions.**

Abstract

"With the rising prevalence of atopic disease, primary prevention may play a role in reducing its burden, especially in high-risk infants. With this in mind, the Adverse Reactions to Foods Committee of the American Academy of Allergy, Asthma & Immunology was charged with the task of developing recommendations for primary care physicians and specialists about the primary prevention of allergic disease through nutritional interventions according to current available literature and expert opinion. Recommendations that are supported by data are as follows. Avoidance diets during pregnancy and lactation are not recommended at this time, but more research is necessary for peanut. Exclusive breast-feeding for at least 4 and up to 6 months is endorsed. For high-risk infants who cannot be exclusively breast-fed, hydrolyzed formula appears to offer advantages to prevent allergic disease and cow's milk allergy. Complementary foods can be introduced between 4 and 6 months of age. Because no formal recommendations

have been previously provided about how and when to introduce the main allergenic foods (cow's milk, egg, soy, wheat, peanut, tree nuts, fish, shellfish), these are now provided, and reasons to consider allergy consultation for development of a personalized plan for food introduction are also presented."

Links

http://www.ncbi.nlm.nih.gov/pubmed/24229819

References

Fleischer, David M., Jonathan M. Spergel, Amal H. Assa'ad, and Jacqueline A. Pongracic. "Primary Prevention of Allergic Disease Through Nutritional Interventions." The Journal of Allergy and Clinical Immunology: In Practice 1.1 (2013): 29-36.

11. **Randomized Trial of Peanut Consumption in Infants at Risk for Peanut Allergy**

Abstract

"**BACKGROUND**

The prevalence of peanut allergy among children in Western countries has doubled in the past 10 years, and peanut allergy is becoming apparent in Africa and Asia. We evaluated strategies of peanut consumption and avoidance to determine which strategy is most effective in preventing the development of peanut allergy in infants at high risk for the allergy.

METHODS

We randomly assigned 640 infants with severe eczema, egg allergy, or both to consume or avoid peanuts until 60 months of age. Participants, who were at least 4 months but younger than 11 months of age at randomization, were assigned to separate study cohorts on the basis of preexisting sensitivity to peanut extract, which was determined with the use of a skin-prick test — one consisting of participants with no measurable wheal after testing and the other consisting of those with a wheal measuring 1 to 4 mm in diameter. The primary outcome, which was assessed independently in each cohort, was the proportion of participants with peanut allergy at 60 months of age.

RESULTS

Among the 530 infants in the intention-to-treat population who initially had negative results on the skin-prick test, the prevalence of peanut allergy at 60 months of age was 13.7% in the avoidance group and 1.9% in the consumption group ($P<0.001$). Among the 98 participants in the intention-to-treat population who initially had positive test results, the prevalence of peanut allergy was 35.3% in the avoidance group and 10.6% in the consumption group ($P=0.004$). There was no significant between-group difference in the incidence of serious adverse events. Increases in levels of peanut-specific IgG4 antibody occurred predominantly in the consumption group; a

greater percentage of participants in the avoidance group had elevated titers of peanut-specific IgE antibody. A larger wheal on the skin-prick test and a lower ratio of peanut-specific IgG4:IgE were associated with peanut allergy.

CONCLUSIONS

The early introduction of peanuts significantly decreased the frequency of the development of peanut allergy among children at high risk for this allergy and modulated immune responses to peanuts. (Funded by the National Institute of Allergy and Infectious Diseases and others; ClinicalTrials.gov number, NCT00329784.)"

Links

http://www.nejm.org/doi/full/10.1056/NEJMoa1414850#t=article

References

Chipps, B. E. "Randomized Trial of Peanut Consumption in Infants at Risk for Peanut Allergy." Pediatrics 136.Supplement (2015)

12. **The effect on mortality of antipyretics in the treatment of influenza infection: systematic review and meta-analyis**

Abstract

"To determine whether antipyretic treatment for influenza infection influences the risk of mortality in animal models and humans.

DESIGN:

A systematic search of Medline, Embase and the Cochrane Register of Controlled Trials was undertaken to identify randomized placebo-controlled trials of antipyretic use in influenza infection in animal models or humans that reported mortality. A quantitative meta-analysis of the risk of death using Peto's one step odds ratio with calculation of the pooled risk of death and standard evaluation of heterogeneity was undertaken.

SETTING:

Not applicable.

PARTICIPANTS:

Not applicable.

MAIN OUTCOME MEASURES:

Risk of mortality associated with antipyretic use in influenza infection.

RESULTS:

Eight studies from three publications met the inclusion criteria. No human studies were identified. The risk of mortality was increased by antipyretic use in influenza-infected animals with a fixed effects pooled odds ratio of 1.34 (95% CI 1.04-1.73). An increased risk was observed with aspirin, paracetamol and diclofenac.

CONCLUSION:

In animal models, treatment with antipyretics for influenza infection increases the risk of mortality. There are no randomized placebo-controlled trials of antipyretic use in influenza infection in humans that reported data on mortality and a paucity of clinical data by which to assess their efficacy. We suggest that randomized placebo-controlled trials of antipyretic use in human influenza infection are urgently required, and that these are sufficiently powered to investigate a potential effect on mortality."

Links

http://www.ncbi.nlm.nih.gov/pubmed/20929891

References

Eyers, S., M. Weatherall, P. Shirtcliffe, K. Perrin, and R. Beasley. "The Effect on Mortality of Antipyretics in the Treatment of Influenza Infection: Systematic Review and Meta-analyis." Jrsm 103.10 (2010): 403-11.

13. **There is (still) too much aluminium in infant formulas**

Abstract

"Background

Infant formulas are sophisticated milk-based feeds for infants which are used as a substitute for breast milk. Historically they are known to be contaminated by aluminium and in the past this has raised health concerns for exposed infants. We have measured the aluminium content of a

number of widely used infant formulas to determine if their contamination by aluminium and consequent issues of child health persists.

Methods

Samples of ready-made milks and powders used to make milks were prepared by microwave digestion of acid/peroxide mixtures and their aluminium content determined by THGA.

Results

The concentration of aluminium in ready-made milks varied from *ca* 176 to 700 μg/L. The latter concentration was for a milk for preterm infants. The aluminium content of powders used to make milks varied from *ca* 2.4 to 4.3 μg/g. The latter content was for a soya-based formula and equated to a ready-to-drink milk concentration of 629 μg/L. Using the manufacturer's own guidelines of formula consumption the average daily ingestion of aluminium from infant formulas for a child of 6 months varied from *ca* 200 to 600 μg of aluminium. Generally ingestion was higher from powdered as compared to ready-made formulas.

Conclusions

The aluminium content of a range of well known brands of infant formulas remains high and particularly so for a product designed for preterm infants and a soya-based product designed for infants with cow's milk intolerances and allergies. Recent research demonstrating the vulnerability of infants to early exposure to aluminium serves to highlight an urgent need to reduce the aluminium content of infant formulas to as low a level as is practically possible."

Links

http://bmcpediatr.biomedcentral.com/articles/10.1186/1471-2431-10-63

References

Burrell, Shelle-Ann M., and Christopher Exley. "There Is (still) Too Much Aluminium in Infant Formulas." BMC Pediatrics BMC Pediatr 10.1 (2010)

14. **Use of Soy Protein-Based Formulas in Infant Feeding**

Abstract

"Soy protein-based formulas have been available for almost 100 years. Since the first use of soy formula as a milk substitute for an infant unable to tolerate a cow milk protein-based formula, the formulation has changed to the current soy protein isolate. Despite very limited indications for its use, soy protein-based formulas in the United States may account for nearly 25% of the

formula market. This report reviews the limited indications and contraindications of soy formulas. It will also review the potential harmful effects of soy protein-based formulas and the phytoestrogens contained in these formulas."

Links

http://pediatrics.aappublications.org/content/121/5/1062

References

Bhatia, J., and F. Greer. "Use of Soy Protein-Based Formulas in Infant Feeding." Pediatrics 121.5 (2008): 1062-068.