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Amoxicillin Dosage

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the field of reading research and practice. Despite this, Hall seems to attribute to me a view I do not hold. She claims that I argue "that the NICHD's criteria for funding only reading research proposals that meet rigorous scientific standards is narrow, given the acceptance of descriptive research among educators." But I am completely in favor of using rigorous science to study reading. What is narrow is the NICHD's monolithic reliance on experimental design. Rigorous science includes descriptive research. The NICHD's blanket rejection of this type of research as unscientific is tantamount to rejecting entire disciplines outright, such as cultural anthropology and animal ethology.

The NICHD's narrowness of scientific vision, expressed in its highly influential National Reading Panel report, prompted widely respected literacy Professor James W. Cunningham, of the University of North Carolina at Chapel Hill, to ask: "What are we to make of a report that so boldly lays claim to what science, rigor, and objectivity are in reading research, and first denigrates, then ignores, the preponderence of research literature in our field?" This "preponderance of research literature" in the field of reading largely includes descriptive studies that have questioned the NICHD's views on phonics and phonemic awareness.

Pediatric health care workers interested in the current debate in the reading field will benefit from the important critiques of NICHD science that can be found in the writings of Coles,[1] Garan,[3,4] and Krashen.[5]

Finally, Hall suggests that my criticism of Dr Lyon's testimony somehow runs counter to the good will of the dedicated volunteers of the International Dyslexia Association, the organization she identifies herself with. I fail to understand Hall's point. The dedication of these volunteers is certainly no obstacle to appreciating that supporting phonics and phonemic awareness is one thing, but advocating coercive testing that puts children at risk is quite a different matter.

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REFERENCES

1. Coles Gerald, *Misreading Reading: The Bad Science that Hurts Children,* Heinemann, Portsmouth, N.H., 2000
2. Cunningham James W., "The National Reading Panel Report," *Reading Research Quarterly,* 36.3, 2001, pp. 326–335
3. Garan Elaine, "Beyond the Smoke and Mirrors: A Critique of the National Reading Panel Report on Phonics," *Phi Delta Kappan,* March, 2001, pp. 500–506
4. Garan Elaine, "What Does the Report on the National Reading Panel Really Tell Us About Teaching Phonics?", *Language Arts Journal,* September, 2001, pp. 59–67
5. Krashen Stephen, "More Smoke and Mirrors: A Critique of the National Reading Panel (NRP) Report on ''Fluency.'" *Phi Delta Kappan,* October, 2001, pp. 118–121
6. Now the pressure begins for Bush's reading expert, *New York Times.* January 19, 2002

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To the Editor.—

We have read the clinical practice guideline about the management of sinusitis published on the behalf of the American Academy of Pediatrics[1] and we particularly appreciated it, not only for the efficacy, but especially for the scientific rigor.

Nevertheless, we were surprised by the prescription of amoxicillin at the usual dosage (45 mg/kg/day) in 2 divided doses. Amoxicillin should be prescribed, according to its pharmacokinetics, in 3 doses. The 2-dose schedule has proved to be equally effective in the eradication of group A Streptococcus in acute tonsillitis but the pharmacokinetics of antibiotics in the tonsils is different from the pharmacokinetics in the middle ear or in the sinuses.[2] Moreover, amoxicillin has a very low minimum inhibitory concentration (MIC) for group A streptococcus but a higher MIC is required for *Streptococcus pneumoniae.* Finally there is no article, to our knowledge, that demonstrates the same efficacy of a 2-dose schedule versus a 3-dose schedule of amoxicillin at the usual dosage in the treatment of sinusitis. From a clinical point of view the difference between the 2 schedules is probably very small, if any, because there is an important trend to spontaneous resolution in these infections.[3]

The problem becomes more relevant when we look at the possibility of an increase of *S pneumoniae*-resistant strains. As a matter of fact in acute otitis media it has been demonstrated that in lower doses amoxicillin <50 mg/kg/day, and long-lasting treatments, >5 days, can facilitate the stay of penicillin-resistant *S pneumoniae* strains in the pharynx.[4]

A concentration of antibiotic superior to the MIC for at least the 40% to 50% of time is required for an effective treatment of acute otitis media.[5] For this reason the dose of amoxicillin required for most of the intermediate resistant strain of *S pneumoniae* should be of 75 mg/kg/day divided in 3 doses of 25 mg/kg each.[6] It has been demonstrated that in order to achieve the same results with 2 doses a higher dose is required (90 mg/kg/day).[7] These data are derived from the treatment of acute otitis media but, as the authors point out, in a sense the middle ear cavity is a paranasal sinus as well.

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REFERENCES

1. American Academy of Pediatrics, Subcommittee on Management of Sinusitis and Committee on Quality Improvement. Clinical practice guideline: management of sinusitis. *Pediatrics.* 2001;108:798–808
2. Ginsburg CM, McCracken GH, Nelson JD. Pharmacology of oral antibiotics used for the treatment of otitis media and tonsillopharyngitis in infants and children. *Ann Otol Rhinol Laryngol Suppl.* 1981;90(pt 3):37–43
3. Morris P. Antibiotics for persistent nasal discharge (rhinosinusitis) in children. *Cochrane Database Syst Rev.* 2000;(3)CD001094
4. Guillemot D, Carbon C, Balka B, et al. Low dosage and long treatment duration of beta-lactam: risk factors for carriage of penicillin resistant *Streptococcus pneumonia. JAMA.* 1988;279:365–370
5. Craig WA. Choosing an antibiotic on the basis of pharmacodynamics. *Ear Nose Throat J.* 1998;77(suppl):7–11; discussion 11-2
6. Canafax DM, Yuan Z, Choumaitree T, et al. Amoxicillin middle ear fluid penetration and pharmacokinetics in children with acute otitis media. *Pediatr Infect Dis J.* 1988;17:149–156
7. Seikel K, Shelton S, Mc Cracken GH Jr, et al. Middle ear fluid concentrations of amoxicillin after large dosages in children with acute otitis media. *Pediatr Infect Dis J.* 1997;16:710–711

In Reply.—

We appreciate the letter from Drs Longo and Barbi regarding the clinical practice guideline for the management of sinusitis. They express concern regarding the recommendation of amoxicillin at 45 mg/kg/day in 2 divided doses for the treatment of acute sinusitis or acute otitis media. They point out that a concentration of antibiotic greater than the MIC for at least 40% to 50% of the therapeutic interval is necessary for an effective treatment of acute otitis media. They note that a dose of amoxicillin at 75 mg/kg/day in 3 divided doses or 90 mg/kg/day in 2 divided doses is necessary for strains of *Streptococcus pneumoniae* that are intermediate in susceptibility to penicillin. We agree entirely with their statements and emphasize that the recommendation for amoxicillin at 45 mg/kg/day in 2 divided doses is made in the instance when the practitioner is treating children without risk factors for antibacterial resistance. Accordingly, it is assumed that in these cases the minimum inhibitory concentration of the *S pneumoniae* will be <0.1 μg/mL.

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