

Chiropractic and Infectious Disease: Expanding the Viewpoint, Part II

Michael A. Schmidt, BS, DC, CCN

In the article, "Antibiotics: Is It Time to Reassess Their Role in Medicine?" published in the Spring 1993 issue of the Journal of Advancement in Medicine, I reviewed the crisis in antibiotic resistance and overuse. I proposed that our solution to the crisis and to the management of infectious disease in general should involve shifting our focus to means of enhancing host resistance. In this paper, I reviewed a series of studies showing the impact of numerous factors on infection susceptibility -- factors that if addressed might in many cases preclude the need for antibiotics or, at the very least, enhance their effectiveness.¹⁴ In another publication I reviewed over 400 scientific papers that support this contention.¹⁵ It might be argued that any doctor who treats patients would be wise to consider such factors. It seems well within the scope of chiropractic to address these matters in patient care.

For example, children with Down's syndrome succumb easily to infection of the ears and upper respiratory tract by *H. influenzae* and *S. pneumoniae*, and as a result experience considerable antibiotic exposure in their early years. Children with Down's syndrome are known to produce significantly lower levels of IgG2 and IgG4 antibodies than their healthy counterparts. These are precisely the antibodies that are directed against *H. influenzae* and *S. pneumoniae*. Anneren et al., showed that when children with Down's syndrome were given selenium (10 mcg/kg) their IgG2 and IgG4 levels returned to normal and incidence of infection decreased significantly.^{16,17}

Bondeham showed that children with increased susceptibility to infection of the ear and upper respiratory tract were more likely to be zinc and iron deficient than their healthy counterparts.¹⁸ Children with severe measles who received vitamin A supplements experienced one-half the complications, such as pneumonia, croup, etc., than those on placebo. When vitamin A deficiency is not corrected in such cases, susceptibility to secondary bacterial infection may persist for three to six months or more.¹⁹ Is the chiropractor to forgo treatment of these children when he knows he can help and he knows it is within the scope of his training? Further, Bendich showed that U.S. children had serum vitamin E levels that were lowest among the industrialized nations and only one-half of the level of Japanese children.²⁰ Vitamin E has a marked effect on immune function and infection-susceptibility. Is the chiropractor to forgo the administration of vitamin E to children with infectious disease when there is clinical evidence of need?

Allergy can also have an impact on infectious disease. Nsouli reported on 104 children with chronic otitis media that was unresponsive to antibiotic or surgical treatment. (Otitis media accounts for 42 percent of all antibiotics prescribed to small children). Seventy-eight percent of these children showed reactivity to foods when tested using three methods. After excluding offending foods for 11 weeks, 70 of 81 children experienced significant improvement. When offending foods were reintroduced, 66 of

the children experienced return of their middle ear problems.²¹ Hurst studied 20 children with recurrent otitis media refractory to all treatment (antibiotic or surgical). After testing for allergic sensitivity and placing them on food elimination diets, 19 experienced resolution of their middle ear effusion.²²

Lewis et al., sampled amniotic fluid from 92 pregnant women to determine exposure to seven heavy metals (cadmium, chromium, cobalt, lead, mercury, nickel and silver). A toxic risk score was calculated based on the number and amount of metals present. After three years, the frequency of infections and allergic disorders was assessed for each child. Those with the highest toxic risk scores were found to have experienced more infections (coughs, fevers, sore throat, ear infection, constipation), more atopic illness (asthma, food allergy, insect allergy, noisy breathing, sneezing, rashes, and eczema), and more illness in general than those with low scores.²³ These were obviously cases of altered immunity and increased infection-susceptibility. Is the physician who prescribes repeated rounds of antibiotics to such children practicing appropriate patient care, or is he who addresses the evident metal toxicity better serving his patients? This is a significant issue when one considers that low-level lead exposure is the number one environmental threat to children and is estimated to affect one in five children. Moreover, pediatric leaders lament the limited attention their colleagues give the issue. Is the chiropractic physician also to ignore the issue? Or is it appropriate to take a leadership role?

Another area that affects the practice of chiropractic is in the treatment of athletes. Sports chiropractic is an important field in which many doctors have excelled. It has been firmly established that athletes who train heavily or who overtrain are more susceptible to infection. The results of many studies on athletic training and immune suppression seem to be conclusive. Asgierrson found that athletes are more susceptible to bacterial infections.²⁴ Salo showed elite swimmers to be more susceptible to infections as the season progresses.²⁵ Researchers at the CDC, in collaboration with investigators at USC, examined the swimmers for one year and found the incidence of infection to be related to weekly mileage.²⁶ Peters found that distance runners were twice as likely to suffer upper respiratory infections following a race.²⁷

Recently, a group of 92 marathon runners were placed on either a vitamin C supplement or a placebo for three weeks prior to a race. Of those taking the placebo, 68 percent showed signs and symptoms consistent with upper respiratory infection, while only 33 percent of those on vitamin C showed such signs.²⁸ In another study, researchers found that supplementation with vitamin E, a known immune modulator, reduced the oxidative damage that occurs with exercise.²⁹

Aggizzoti measured serum chloroform in swimmers and found a linear relationship between blood chloroform levels and the number of days spent in the pool each week.³⁰ Chloroform is a by-product of chlorination and is a potent oxidant and respiratory irritant. The presence of such an oxidant increases the need for antioxidant nutrients. In such a case, we potentially have a combination of heavy training with immune suppression, environmental exposure, and increased nutritional needs.

I noted above that elite swimmers are more susceptible to infection as the season progresses. Asthmatic swimmers are similarly more susceptible to respiratory infection. Should we follow the allopathic approach of managing the asthma with bronchial inhalants and treat each infection separately with antibiotics. Or should we address the effects of overtraining, the circumstances of

chlorine exposure, the nutritional demands of a long season of heavy exertion, and the nutritional demands of increased pollutant exposure? Is the physician who treats the recurrent infections of an overtrained athlete with repeated antibiotics practicing good medicine? Or is the doctor who addresses the specific training needs of his patients in addition to managing the increased nutritional requirements doing his patient the best service?

Another area that affects infection susceptibility is mood, attitude, coping, and stress. So significant is this effect that an entire new field of study has emerged called psychoneuroimmunology. When Hans Selye was asked to address the issue of stress and infection he stated, "If a microbe is in or around us all the time and yet causes no disease until we are exposed to stress, what is the 'cause' of our illness, the microbe or the stress? I think both are and equally so. In most instances the disease is due ... to the inadequacy of our reactions against the germ."³¹

Boyce and his colleagues raised several important questions regarding infections in children. They wrote, "Despite major advances in the microbiology of respiratory disease, why and how a child becomes ill remains poorly understood. In over half of respiratory illnesses, complete cultures fail to yield an etiologic agent. Conversely, 30 percent of a school-age population can harbor group a-streptococci without developing symptoms, three-quarters of preschool children infected with *Mycoplasma pneumoniae* remain asymptomatic, and as many as 42 percent of upper respiratory tract cultures from well children yield pneumococci." Boyce found that after factoring out all variables such as age, sex, race, income, and family size, life change was the strongest single predictor of how long a child stayed ill. High life change (or life event) scores coupled with rigid family routines were together related to the severity of infectious illness. According to Boyce, "It appears that illnesses became more severe as the magnitude of life change and the strength of family routines jointly increased."³² Meyer and Haggerty reported on a now famous study in which 16 families were followed for one year to assess the effect of stress on streptococcal infections. They found that:³³

- Stress was four times more likely to precede an infection as to follow an infection.
- When throat cultures revealed a streptococcal infection, one-half of those under high stress became ill.
- Of the low-stress individuals with a positive strep. culture, only one-fifth became ill.
- One out of four outbreaks of illness followed some form of family crisis.

Attitude also has an impact on infection susceptibility. Sobel and Ornstein reported that optimists have higher T-helper/suppressor ratios.³⁴ Seligman and Peterson have reported independently that optimists suffer fewer infectious diseases and make fewer trips to physicians than pessimists.^{35,36} Pennebaker found that those who keep journals or share feelings as about stressful circumstances or events experience measurable surges in immune function. When people use these as a means of coping, they experienced fewer visits for health services and fewer infections.³⁷ There are many similar influences published in the scientific literature.

If the chiropractic physicians ignore their role in the care of illness where microorganisms are associated, they limit the service to patients and may also drastically restrict the type of patients to whom they may offer services. For example, fibromyalgia/fibrositis has been associated with protozoan infection and with the spirochete *Borrelia burgdorferi*. Some cases of rheumatoid arthritis have been associated with the protozoan *Blastocystis hominis*. Numerous gastrointestinal complaints are related to overgrowth of microorganisms such as *Candida albicans*, *Helicobacter pylorii*, and *Klebsiella pneumoniae*. *Giardia lamblia* has been associated with some cases of chronic fatigue syndrome. The list of conditions associated with microbes is substantial. Are the microbes causative, associative, opportunistic, or irrelevant? The question is not easily answered.

From the evidence, it is clear that diet, nutrition, lifestyle, hygiene, environment, and psychosocial factors all have an enormous impact upon immune function and upon resistance to infectious disease. I would venture to guess that the majority of chiropractors regularly address these areas as a part of their patient care strategy. When we talk about taking away the ability to care for patients with conditions associated with microorganisms, not only do we limit our ability to treat using methods taught in our institutions of higher learning, we seriously undermine our role as primary care providers.

This is not a matter of chiropractic versus allopathic medicine at its core (the political winds notwithstanding). This is an issue of comprehensive patient care. At a time when all professionals should be pooling their collective wisdom to address an urgent need (i.e., dealing with the antibiotic crisis and immune enhancement), "representatives" of the chiropractic profession have taken the expedient route without careful consideration of current scientific understanding. The public is beginning to view chiropractic physicians as those who treat the whole person, yet we are now faced with a substantial limitation regarding that role. Surely, chiropractors who denounce antibiotics out-of-hand do so out of philosophy and with a limited understanding of the facts. This cannot be condoned. However, those who merely embrace antibiotics as appropriate in all circumstances and with wholehearted endorsement, likewise do so out of philosophy and with a limited understanding of the facts. There is a balance somewhere in between where science, reason, common sense, and clinical experience meet to best serve the needs of the patient. Antibiotics are a vital part of the therapeutic arsenal. But we should be careful not to overstate their role in infectious disease care. History and controlled study have shown the issue to be far more complex.

I urge you all to take the matter seriously. Respond to those in positions of influence with scientific evidence, not emotion. You must be passionate, but informed. If you are among those who would castigate others that choose to care for patients with infections, do not write them off with the all-too-easy tag of "unethical." Remember, you too have been erroneously labeled for most of your career by those outside your profession. Those who treat patients with infections care as deeply for their patients and their work as do you. Do not be so quick to jump on the bandwagon of condemnation.

References:

(Ref. 1-13 appeared in Part I of this article, Nov. 5, 1993 issue).

14. Schmidt MA: Antibiotics: is it time to reassess their role in medicine? *J Adv Med* 1993; 6(1): 41-46.
15. Schmidt, MA, Smith LH, Sehnert KW: *Beyond Antibiotics: Healthier Options for Families*. Berkeley, CA: North Atlantic Books, 1993.
16. Anneren G, Magnusson CGM, Nordvall SL: Increase in serum concentrations of IgG2 and IgG4 by

selenium supplementation in children with Down's syndrome. Arch Dis Child 1990; 65: 1353-55.

17. Anneren G, Gebre-Mehdin M, Gustavson KH: Increased plasma and erythrocyte selenium concentrations but decreased erythrocyte glutathione peroxidase activity after selenium supplementation in children with Down syndrome. Acta Paediatr Scand 1989; 78: 879-4.

18. Bondestam M, Foucard T, Gebre-Medhin M: Subclinical trace element deficiency in children with undue susceptibility to infection. Acta Paediatr Scand 1985; 74: 515-20.

19. Campos FA, Flores H, Underwood BA: Effect of an initial infection on vitamin A status of children as measured by the relative dose response (RDR). Am J Clin Nutr 1987; 46: 91-94.

20. Bendich A: Vitamin E status of U.S. children. J Am Col Nutr 1992; 11(4): 441-44.

21. Anonymous. Says food allergy seems important cause of Otitis. Fam Pract News 1991; 21(5): 14.

22. Hurst DS: Allergy management of refractory serous Otitis media. Otolaryngol Head Neck Surg 1990; 102: 664-669.

23. Lewis M, Worobey J et al: Prenatal exposure to heavy metals: effect on childhood cognitive skills and health status. Pediatrics 1992; 89: 1010-1015.

24. Asgiersson G, Bellanti JA: Exercises immunity and infection. Sem Adolescent Med 1987; 3: 199-204.

25. Salo DC: Does swimming make you sick? Swimming World 1989; 10: 59.

26. Heath GW et al: Exercise and the incidence of upper respiratory tract infections. Med Sci Sports Ex 1991; 23: 152-157.

27. Peters EM, Bateman ED: Ultramaratho running and upper respiratory tract infections. SA Med J 1983; 64: 582-3.

28. Peters et al. Vitamin C supplementation reduces the incidence of post-race symptoms of upper respiratory tract infection in ultramarathoners. Am J Clin Nutr 1993: 57.

29. Blumberg J: USDA, 1992.

30. Aggazzotti G: Plasma chloroform concentrations in swimmer using indoor swimming pools. Arch Env Hlth 1990; 45(3): 175-9.

31. Selye H: The Stress of Life. New York: McGraw Hill, 1978: 299.

32. Boyce TW, Jensen EW, Cassel J, et al: Influence of life events and family routines on childhood respiratory tract illness. Pediatrics 1977; 60(4): 609-15.

33. Meyer RJ, Haggerty RJ: Streptococcal infections in families: factors altering individual susceptibility. Pediatrics 1962 (April): 539-49.

34. Ornstein R, Sobel D: Healthy Pleasures. New York: Addison-Wesley, 1989.

35. Seligman MEP: Learned Optimism. New York: Alfred A. Knopf, 1991.
36. Peterson C: Explanatory style as a risk factor for illness. Cognitive Ther Res 1988; 12: 117.
37. Pennebaker S: Opening Up: The Healing Power of Confiding in Others. Avon: New York, 1991.

Michael A. Schmidt, BS, DC, CCN
Anoka, Minnesota

DECEMBER 1993