

# INFECTIOUS DISEASE ALERT

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*A twice-monthly update of developments in infectious disease, hospital epidemiology, microbiology, infection control, enteriatrics, and HIV treatment*

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## Kids Get Out of the Pool!

### ABSTRACT & COMMENTARY

*Synopsis: An outbreak of a painful, nodular skin eruption of the soles affecting 40 children using a wading pool was caused by *Pseudomonas aeruginosa*.*

Source: Fiorillo L, et al. The pseudomonas hot-foot syndrome. *N Engl J Med.* 2001;345:335-338.

An unusual outbreak of a distinctive skin eruption occurred among 40 children using a community wading pool. The children developed painful erythematous plantar nodules 10-40 hours after using the pool. The weight bearing areas of the sole were most severely affected. In some children, the nodules were so tender that contact with socks or bedsheets caused severe pain. Several patients had low-grade fever and constitutional symptoms.

Thirty-seven of 40 patients received no antibiotic treatment. All recovered without sequelae within 14 days; 88% recovered within 7 days. Three patients had a relapse within 24 hours of a subsequent visit to the pool. Punch biopsies of plantar nodules showed intense infiltration of neutrophils around blood vessels and adnexal structures. Culture of a dermal abscess yielded *Pseudomonas aeruginosa*.

The wading pool in question had an abrasive coating on the bottom to reduce slipping. The water was grossly clear but multiple cultures were positive for *P aeruginosa*. The environmental strains were identical to the clinical isolate by pulsed field gel electrophoresis (PFGE). After extensive disinfection measures, *P aeruginosa* was eliminated, and no further cases occurred.

■ COMMENT BY ROBERT MUDER, MD

“Hot tub folliculitis” is a well known entity that occurs after exposure to hot tubs and whirlpool spas contaminated with *P aeruginosa*.<sup>1</sup> The rash tends to occur on the hips, buttocks, axillae, and lateral trunk. Mastitis and otitis externa are occasionally seen. Involvement of the palms and soles is distinctly unusual. Fiorillo and colleagues postulate that the occurrence of plantar lesions among the children they describe may have been facilitated by the abrasive

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floor of the pool, and by the fact that the plantar skin of children is considerably thinner than that of adults.

The differential diagnosis of nodular lesions on the soles is limited and includes such unusual entities as recurrent idiopathic palmoplantar hidradenitis. The occurrence of multiple cases in a community makes the diagnosis of such rare disorders unlikely. Early recognition of the distinctive clinical and epidemiologic features of "pseudomonas hot foot syndrome" can allow one to avoid unnecessary diagnostic measures and antibiotic therapy, and lead to elimination of the source of the outbreak.

It should be noted that high-level contamination of pools and hot tubs by *P aeruginosa* may occur in the absence of obvious clouding of the water or malfunction of filters or chlorinators. Free chlorine levels may be reduced by high temperatures, high pH, or high concentrations of organic material during periods of heavy use. *Legionella* species can also flourish in the hot tub envi-

ronment. Outbreaks of nonpneumonic legionellosis, as well as Legionnaires' disease, have been linked to contaminated whirlpool spas.<sup>2,3</sup> ❖

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1. Gustafson TL, et al. Pseudomonas folliculitis: An outbreak and review. *Rev Clin Infect Dis*. 1983;5:1-8.
2. Spitalny KC, et al. Pontiac fever associated with a whirlpool spa. *Am J Epidemiol*. 1984;120:809-817.
3. Jernigan DB, et al. Outbreak of Legionnaires' disease among cruise ship passengers exposed to a contaminated whirlpool spa. *Lancet*. 1996;347:494-499.

# HIV and Endocarditis—Two Strikes and Some Are Out

## ABSTRACT & COMMENTARY

**Synopsis:** One-eighth of endocarditis cases occurred in HIV-infected patients, most of whom were injection drug users.

Source: Cicalini S, et al. Infective endocarditis in patients with human immunodeficiency virus infection. *J Infect*. 2001; 42:267-271.

This report, centered in Rome, involved 54 centers throughout Italy from which Cicalini and colleagues collected 895 cases that satisfied the Duke criteria for a definite diagnosis of infective endocarditis (IE), and from that group extracted those cases in patients with HIV infection. In 105 patients with HIV and IE, there were 108 episodes: 77 were males and 28 were females. Most patients (94%) were injection drug users (IDU) and about 11% had at least 1 previous episode. The duration of IDU was only 6 years.

Causative organisms were *Staphylococcus aureus* in 55%, coagulase-negative staphylococci in 6%, viridian streptococci in 11%, enterococci and Gram-negative bacilli both in 3.7%, *Candida albicans* in 1.8%, with polymicrobial infection in 5.6%.

The right-sided valves were involved in 53.7%, left-sided valves in 34%, and both sides in 11%. Tricuspid valve involvement was present in 56 cases, statistically more prevalent than for other valves. More than 1 valve was infected in 17.6% of cases.

About 94% (95/101) were treated medically, 6% surgically. Eighteen of 101 (17.8%) died, most in the medically treated group. Nearly 82% of the patients had cardiovascular complications including congestive heart

**Infectious Disease Alert** ISSN 0739-7348, is published twice monthly by American Health Consultants, 3525 Piedmont Rd., NE, Bldg 6, Suite 400, Atlanta, GA 30305.

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### POSTMASTER:

Send address changes to *Infectious Disease Alert* P.O. Box 740059, Atlanta, GA 30374.

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In order to reveal any potential bias in this publication, we disclose that Dr. Deresinski is involved in research with Merck, Sharp & Dohme, Novartis (Systemix), DuPont-Merck, Gilead, Agouron, and Abbott. He also serves as a consultant to Bristol-Myers Squibb, Immunex, and Protein Design Labs and serves on the speaker's bureau of Merck, Sharp & Dohme, Bristol-Myers Squibb, GlaxoSmithKline, Ortho, Bayer, and Lederle. Dr. John is a consultant for Aventis, Roche, and Abbott, is on the speaker's bureau of Merck, AstraZeneca, Aventis, GlaxoSmithKline, and Abbott, and does research for Pfizer, Merck, and Liposome. Dr. Kemper serves on the speaker's bureau of Virologic, GlaxoSmithKline, Pfizer, and Agouron and is involved in research with Chiron, Merck, Agouron, and Virologic. Dr. Schleis is on the speaker's bureau for Roche, Aventis, and Bayer and is a consultant for FFF Enterprises, Aventis, and Bayer. Dr. Muder does research for Ortho-McNeil, Aventis, and Pharmacia & Upjohn. Dr. Tice is a consultant for Roche, Merck, Pharmacia & Upjohn, 3M, Agouron, and Ortho and is on the speaker's bureau of Roche, Ortho, Agouron, Schering, and Pharmacia & Upjohn, and does research for Roche, Merck, and Pharmacia & Upjohn. Dr. Jensen is on the speaker's bureau of Merck and Pfizer and does research for Merck and GlaxoSmithKline. Dr. Donnelly, Dr. John, and Dr. Smilack report no speaker's bureau, research, stockholder, or consulting relationships having ties to this field of study.

failure, septic pulmonary emboli, stroke, or other systemic emboli.

■ COMMENT BY JOSEPH F. JOHN, MD

In this massive review from Italy, about one-eighth of cases of IE were in the setting of HIV infection. The important epidemiologic factors involve the predominance of IDU and the high rate of *S aureus* infection. A left-sided vegetation was more likely associated with death than a right-sided lesion. One firm message here is that clinicians should consider surgery in those IE/HIV patients who are febrile.

It is well known that nasal carriage of *S aureus* is more likely in certain groups of patients, HIV-infected patients among them. Earlier studies have shown that nasal carriage of *S aureus* in HIV patients is associated with subsequent invasive disease. Since IE poses a major risk for HIV patients, especially those who inject drugs, it may not be unreasonable to reduce the risk somewhat by intermittent decolonization of the nares of those patients who are heavy carriers of *S aureus*—a clinical trial dealing with this issue would be welcome. In fact, Cicalini et al intimate that there is a need to develop “public health strategies” to deal with this problem. It has been more than a decade since Nahass and colleagues brought attention to the risk for IE in HIV, but little has changed in our understanding, therapy, or prevention of this dreaded disease.<sup>1</sup> ♦

Reference

1. Nahass RG, et al. Infective endocarditis in intravenous drug users: A comparison of human immunodeficiency virus type 1-negative and positive patients. *J Infect Dis.* 1990;162:967-970.

## Early Transition from Intravenous to Oral Antimicrobial Therapy

### ABSTRACT & COMMENTARY

*Synopsis: A comprehensive program led to significant cost savings by encouraging early transition from intravenous to orally administered levofloxacin.*

Source: Wong-Beringer A, et al. Implementing a program for switching from i.v. to oral antimicrobial therapy. *Am J Health Syst Pharm.* 2001;58:1146-1149.

**T**his article describes in detail how a pharmacist-initiated, i.v.-to-oral antimicrobial switching

program was implemented at Huntington Memorial Hospital. This hospital is a full-service, 525-bed, community hospital in Pasadena, Calif, and is affiliated with 2 universities.

The pharmacy team took the approach of initially identifying a specific antimicrobial agent based upon pharmacologic properties and prescribing patterns. They also used the results of a survey that was sent out to prescribers. By their definition, the “ideal” antimicrobial agent was one with high bioavailability, low adverse-effect profile, minimal drug-drug interactions, long half-life, and low rate of documented resistance problems. They felt that levofloxacin met those criteria.

They then assessed the prescribing patterns in their hospital and found that 80% of the patients that were receiving levofloxacin intravenously would have potentially been candidates for oral therapy. They followed this with a questionnaire that was sent to the top 100 admitting physicians to determine the criteria prescribers were using in determining patient eligibility for switching from i.v. to oral. The questionnaire was also administered to the house staff and randomly distributed to attending physicians. Of the 49 responses that were received, 71% stated that patients were continued in i.v. therapy due to clinical instability, 39% had concern regarding patient’s gastrointestinal function, 39% had questions regarding which oral alternatives were appropriate, 37% had questions regarding the bioavailability of oral antimicrobials, 35% admitted that they were simply not thinking about it at the time it might have been appropriate, and 40% felt that i.v. therapy was required by third party payers to keep patients in the hospital.

The issue of third party payer reimbursement was thoroughly investigated by Wong-Beringer and colleagues and it was found that 85% of the patients receiving levofloxacin were being treated for respiratory-tract infections, which were primarily community-acquired pneumonia. The reimbursement mix was Medicare, Medicaid, and 3 independent physician organizations. Hospital admission, continuing stay, and discharge planning were governed by guidelines published by InterQual and Milliman & Robertson. Under the most up-to-date versions of these guidelines, i.v. and/or oral therapy are accepted criteria for hospital admission and continuing stay.

Realizing that the effectiveness of this project would require appropriate clinical educational programs, information was distributed, seminars presented, and the reimbursement staff inserviced. Working with the medical staff, the pharmacy developed crite-

ria for patient eligibility. First, it was decided that patients could be evaluated for a switch from i.v. to oral only after they had been stable or improved for 48 hours. Secondly, to be eligible, patients had to meet 4 criteria: 1) be able to adequately absorb oral medications via the oral, nasogastric tube, or gastric tube route; 2) be able to eat or tolerate enteral feeding with minimal residuals (< 50% of hourly rate); 3) not have any nausea or vomiting; and 4) be clinically improving. Patients with meningitis or endocarditis were excluded.

With these criteria in hand, an intervention form was developed and a memorandum sent to all prescribers explaining the rationale and objectives of the program and the pharmacists' role. Internally, the pharmacy developed an algorithm to insure consistency among the pharmacy staff. Once pharmacy identified a potential patient for switch from i.v. to oral, the intervention form was left for the prescriber to decide whether to accept the recommendation. Under this program, there was a 31% conversion of i.v. to oral therapy which resulted in an annual cost savings of approximately \$37,000 per year.

■ COMMENT BY THOMAS G. SCHLEIS, MS, RPh

All providers and health care systems are being expected to do more for less. Shrinking reimbursement and rising drug costs have challenged pharmacists to reduce costs wherever possible. While some programs have been poorly implemented, others have followed a more rational and methodical path. The treatment of community-acquired pneumonia has been an area that has been targeted as one which is well-suited for a standardized treatment algorithm. Other programs similar to the one described above have been implemented throughout the country.<sup>1-4</sup> Some of the "buzz terms" that are used in describing these programs are "Critical Pathways," "Clinical Pathways," "Transition Therapy," "Switch Therapy," and "I.V. to Oral." In all of the references cited here, levofloxacin was chosen as the workhorse quinolone, partly due to the aggressive pricing offered by the manufacturer, Ortho-McNeil.

The development of a program such as the one described above can only be successful if there is input from infectious diseases specialists and other prescribers, and if the physician is the ultimate decision maker. In all of the references cited here, antimicrobial resistance patterns for all appropriate antimicrobials were studied before levofloxacin was chosen. Even then, unless antimicrobial resistance patterns, prevalent organisms, and treatment efficacy are monitored on a regular basis, problems can occur down the

road. It is only through a multi-disciplinary approach that efficacious and cost-effective patient care can be realized. ❖

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4. Moran GJ. New directions in anti-infective therapy for community-acquired pneumonia in the emergency department. *Pharmacotherapy*. 2001;21(suppl 7, Pt 2):S95-S99.

## Antimicrobial Therapy for Lower Urinary Tract Infections in Children

### ABSTRACT & COMMENTARY

*Synopsis: A meta-analysis of 22 studies showed significant differences between cure rates for short and conventional (5 days or longer) courses of antimicrobial therapy for uncomplicated lower urinary tract infections in children, although 3 days of trimethoprim-sulfamethoxazole therapy appears to be as effective as conventional length courses of this drug.*

Source: Tran D, et al. Short-course versus conventional length antimicrobial therapy for uncomplicated lower urinary tract infections in children: A meta-analysis of 1279 patients. *J Pediatr*. 2001;139:93-99.

**A** literature review of antimicrobial therapy for urinary tract infections in children yielded 517 citations. A meta-analysis was performed on 22 published trials that were selected by protocol, with a total of 1279 patients. Each study compared short-course and conventional course (5 days or longer) treatment using a single drug. All of the studies attempted to exclude children with pyelonephritis, as indicated by clinical signs, or elevated ESR or C-reactive protein. For all 22 studies,

the test for heterogeneity was significant ( $P = .01$ ), indicating that the differences among the studies in agents used and the definition of “short-course” therapy was significant. The overall difference in cure rates between single-dose/short-course and conventional length therapy was significant, favoring longer treatment (6.38%; 95% CI, 1.9-10.9%). Analysis of the 5 studies using amoxicillin showed that the test for heterogeneity was not significant ( $P = .6$ ). The difference in cure rate for conventional length amoxicillin therapy was significantly better than for shorter courses (13.0%; 95% CI, 4.0-24.0%). Analysis of the 6 studies using trimethoprim-sulfamethoxazole showed that the test for heterogeneity was significant ( $P = .004$ ). The difference in cure rate between conventional and shorter courses of trimethoprim-sulfamethoxazole was not significant (6.2%; 95% CI, -3.7-16.2%).

■ COMMENT BY HAL B. JENSON, MD, FAAP

Short-course antimicrobial therapy offers several potential advantages over conventional length of treatment, including increased compliance and potentially fewer adverse events. This meta-analysis demonstrated that among children with uncomplicated lower urinary tract infections, antimicrobial courses of 5 days or longer in duration were associated with higher cure rates. From the overall analysis, 16 patients (95% CI, 9- 53 patients) would have to receive conventional length therapy to prevent 1 treatment failure that would have occurred using single-dose or short-course therapy.

Analysis of the 5 studies using amoxicillin, 4 of which compared a single dose to conventional therapy, showed that the cure rate with shorter courses was significantly less than conventional length therapy. From this analysis, 8 patients (95% CI, 4-25 patients) would have to receive conventional length therapy to prevent 1 treatment failure that would have occurred using single-dose or short-course therapy. Similar analysis of the 6 studies that used trimethoprim-sulfamethoxazole, 3 of which compared a single dose to conventional therapy, showed no difference in cure rates between conventional and shorter courses. There were insufficient studies of other agents (eg, single-dose aminoglycosides, cephalosporins) for analysis.

Short-course therapy is less effective than courses of 5 or more days for treatment of uncomplicated lower urinary tract infections in children. This is largely the result of ineffectiveness of single-dose amoxicillin therapy. A 3-day course of trimethoprim-sulfamethoxazole appears to be as effective as longer courses of therapy. ❖

## Is It Time to Give Amphotericin Round-the-Clock?

ABSTRACT & COMMENTARY

*Synopsis: Compared to the standard practice of administering amphotericin B over a 4-hour period, infusing amphotericin B over the entire 24-hour period was associated with fewer infusion-related side effects and lesser nephrotoxicity.*

Source: Eriksson U, et al. Comparison of effects of amphotericin B deoxycholate infused over 4 or 24 hours: Randomised controlled trial. *BMJ*. 2001;322:579-582.

Since its introduction into clinical practice more than 40 years ago, amphotericin B has remained an invaluable antifungal agent whose use has been limited chiefly by immediate and delayed side effects. Among the troublesome immediate, infusion-related adverse effects, fever, shaking chills, nausea, and vomiting are well known.

Eriksson and colleagues at Zurich University Hospital enrolled patients in a trial comparing 2 amphotericin B infusion times, 4 hours (termed “rapid”) and 24 hours (“continuous”). Patients qualified for the study if they had refractory fever or strongly suspected or proven invasive fungal infection. Of the 80 patients enrolled in the trial, more than 90% were severely neutropenic as a result of treatment for acute leukemia or lymphoma. Half of the patients received rapid amphotericin B infusions, while the other half were infused continuously over the entire 24 hours of each day of treatment. Maximum daily doses ranged from 0.4 to 1.2 mg/kg in the rapid group, and 0.5 to 1.5 mg/kg in the continuous group. Median maximum daily doses were virtually identical in the 2 groups, 0.95 mg/kg and 0.96 mg/kg, respectively. Study patients were treated for a minimum of 3 days to a maximum of 89 days; those in the continuous treatment group were treated somewhat longer than those in the rapid group (median length of therapy 16 and 12 days, respectively). Therapy with concomitant nephrotoxic medications, such as aminoglycosides and vancomycin, was similar in both groups. Patients were monitored for fever (antipyretics were prohibited), chills, rigors, vomiting, and such laboratory analytes as serum creatinine, electrolytes, magnesium, and C-reactive protein.

Febrile and other reactions to amphotericin B infusions occurred significantly less often in the continu-

ous-infusion group (see Table). Moreover, patients receiving continuous infusion required drugs to suppress fever and chills (eg, meperidine, acetaminophen, and corticosteroids) less often than those in the 4-hour infusion group.

Table		
Infusion-Related Side Effects		
	Infusion Rate	
	Rapid (n = 40)	Continuous (n = 40)
<b>Reactions on day 1</b>		
Fever	21 (53)	10 (25)
Chills	21 (53)	5 (13)
Vomiting	14 (35)	4 (10)
Headache	4 (10)	0
<b>Overall reactions</b>		
Chills	25 (63)	8 (20)
Vomiting	24 (60)	11 (28)

Values are numbers (percentages) of patients

Continuous infusion patients experienced lesser increases of serum creatinine—and had correspondingly greater calculated creatinine clearances—during and at the end of treatment. Hypokalemia was less frequent in the continuous infusion group, but the difference was not statistically significant. Although proven or probable fungal infection was more frequent in the continuous infusion group, mortality both during and after amphotericin B treatment was diminished.

Eriksson et al conclude that continuous infusion of amphotericin B may be at least as effective as daily 4-hour infusions, and is associated with decreased rates of nephrotoxicity and infusion-related side effects.

■ COMMENT BY JERRY D. SMILACK, MD

The implications of this study are extremely important. Clinicians' reluctance to institute amphotericin B therapy is chiefly related to infusion-related side effects and concern over the potential of nephrotoxicity. Indeed, these are the driving forces behind the increasing use of liposomal amphotericin B products that have become available in the past few years. Eriksson et al have demonstrated that daily administration of amphotericin B over a 24-hour period can result in marked reduction of chills, fever, and gastrointestinal side effects, with the additional benefit of reduced nephrotoxicity.

What are the limitations of this study? The most important limitation is that it was performed almost exclusively in a strictly defined group of patients, those

with hematological or solid tumor malignancies, almost all of whom were severely neutropenic. Granted, the number of patients in each of the randomized groups was respectable, but not huge. Whether similar results would be obtained in non-neutropenic, general medical, and surgical patients is open to conjecture and requires investigation. Another small point relates to Eriksson et al's definition of fever (core temperature  $\geq 39.3^\circ\text{C}$  [ $102.7^\circ\text{F}$ ]); whether a lower threshold definition would alter the results is not known. Also unclear was how Eriksson et al differentiated fever induced by amphotericin B from fever associated with suspected or proven fungal infection. One final point that was somewhat vague in the study: although Eriksson et al stated the maximum daily and cumulative doses of amphotericin B, doses used to initiate therapy were not mentioned. One must presume they were similar in both groups of patients.

Will continuous (24-hour) dosing become the method of choice? Will it obviate clinicians' tendency to go directly to liposomal amphotericin B? The questions are not moot insofar as medical costs are concerned. Amphotericin B deoxycholate is inexpensive (average wholesale price [AWP] of a 50-mg daily dose is \$11.64), while the liposomal preparations strain hospital budgets (AWP of a 350-mg dose [5 mg/kg for a 70 kg patient] ranges from \$653.31 for amphotericin B cholesteryl complex to \$1318.80 for amphotericin B liposomal). ❖

## Hair Transplantation and Infection

### ABSTRACT & COMMENTARY

**Synopsis:** *A man developed a life-threatening infection as a result of a hair transplant procedure.*

Source: Hirsch BE, et al. *Staphylococcus aureus* sepsis complicating hair transplant. *Infect Dis Clin Pract.* 2001;10:101-102.

**A** 44-year-old man received his first hair transplant in a New Jersey dermatologist's office and subsequently experienced marked local swelling at the donor site. Prior to the second treatment, he was prescribed prednisone 10 mg t.i.d. for 3 days. There was considerable bleeding at the donor site and a hematoma developed which was aspirated but subsequently recurred. After the second evacuation, the

donor site was reapproximated with heavy woven silk sutures.

Within a week, the patient developed a high fever, myalgia, and pleuritic chest pains. One day later he was seen in the emergency room in florid sepsis. His blood pressure was 95/50 mm Hg; oral temperature 39.0° C; pulse rate 137 beats per minute; and respirator rate 28 breaths per minute. He was confused and diaphoretic and the scalp incision site was raised and swollen with dried blood matted over the wound. The admitting physician described the patient as “about as sick as possible.”

The patient was immediately admitted and was resuscitated in the intensive care unit. Empiric therapy with imipenem, vancomycin, and gentamicin was changed to nafcillin once blood cultures taken at admission yielded oxacillin susceptible *Staphylococcus aureus*. The scalp wound was debrided and a bleeding source ligated. Silk sutures were removed and the wound irrigated and left open with normal saline wet-to-dry dressing changes. *S aureus* with identical susceptibilities to the blood isolate was cultured from the scalp.

The patient recovered completely with a total of 37 days of antimicrobial therapy. While he did not lose any of his hair grafts, he was not planning on having any further transplant surgery.

■ COMMENT BY THOMAS G. SCHLEIS, MS, RPh

As mentioned in the article, the incidence of infectious complications of such procedures is less than 0.1%. However, in this case the occurrence of such an infection was life threatening. Hirsch and colleagues expressed caution regarding the use of steroids to control swelling in such procedures, and added that the dermatologist did not control the bleeding properly. The nonabsorbable suture material then provided an excellent local medium for bacterial growth. Combined, the patient became a perfect candidate for a procedure-related infection.

Being follicle’ly-challenged myself, I have on occasion considered such a procedure. In the flashy ads you watch the hair from the back of the scalp miraculously fly towards the top of the head, take root, and result in the development of a full, healthy head of hair. Then I saw an actual procedure being performed on a medical channel and completely lost interest. In reality, it involves cutting out a patch of hair from the back of the

head, stitching up the affected area, carefully separating out sections of the removed hair and tissue for transplantation, cutting out plugs from the bald part(s) of the scalp with a device that was similar to that used in chemistry to bore holes in corks, and inserting plugs of the prepared hair follicles and tissue into the scalp. Obviously, because the head and scalp is highly vascularized there is a fair amount of bleeding, even in the best of circumstances. Considering the number of plugs that are generally transplanted, it is surprising that the infection rate is as low as it is.

The lesson to be learned here is that if you are considering such a procedure, know that while the statistics are on your side it would be wise to have a good infectious diseases specialist at your side as well. ❖

## CME Questions

**14. What is the most likely bacterial species to cause endocarditis in patients with HIV infection?**

- Viridans streptococci
- E coli*
- Staphylococcus aureus*
- Enterococci

**15. Which of the following is true?**

- Patients with meningitis are suitable candidates for early switch from intravenous to oral antimicrobial therapy.
- The bioavailability of oral levofloxacin is similar to intravenous levofloxacin.
- Once a patient is switched to oral antimicrobial therapy, there is risk that further hospitalization may be denied by payers.
- Clinical pathways and algorithms for treatment of community-acquired pneumonia are rare.

**16. Compared with standard, 4-hour infusion of amphotericin B, continuous 24-hour infusion has been shown to:**

- reduce the frequency of hypokalemia and hypomagnesemia
- result in similar rates of chills and fever, but less nephrotoxicity.
- result in increased efficacy, but at the cost of increased side effects.
- reduce rates of infusion-related side effects and nephrotoxicity.

**17. Which of the following is true?**

- The risk of infection from hair transplants is approximately 1%.
- Hair transplants are simple procedures that do not lend themselves to complications.
- Staphylococcus aureus* infections resulting from hair transplants can be life threatening.
- It is appropriate to treat edema that results from hair transplantation with systemic steroids.

## In Future Issues:

Itraconazole and Terbinafine May be Linked to Liver Failure

## Parasite Re-emerges from Lake Como

**Source:** Terramocci R, et al. *Infection*. 2001;29:93-95.

Having all but vanished for years, *Diphyllobothrium latum* is re-emerging in Lake Como, Italy. Recently, the tapeworm infection was found in 6 people, 3 of whom lived in the Lake Como area and 3 of whom had been vacationing in the area. All 6 had eaten raw or smoked perch filets. Perch fished from the subalpine lake region on the Italian-Swiss border were found to contain larval forms of the tapeworm, although the Swiss shores of Lake Como and Lugano appear to be clear of the parasite.

During the last 30 years, there have been only sporadic reports of human *D latum* infection, all of which came from the Northern lakes area of Italy, southern Switzerland and France. However, in the distant past, Lakes Como, Grada, Iseo, and Maggiora were considered endemic for the parasite. The parasitic infection subsequently dwindled, probably as the result of the die-off of its major intermediate host—perch—from excessive pollution of Italian lakes and streams. Re-emergence of the parasite may be attributed to improvement in pollution levels, as well as consumption of raw or undercooked fish filets, especially in Chinese cuisine. ■

## Vibrio vulnificus Kills 5 in Los Angeles

**Source:** ProMED-mail post, August 9, 2001; promed@promedmail.org.

*Vibrio vulnificus* infection has resulted in the deaths of 5 Latino men in Los Angeles County this summer. All 5 were in their 40s and 50s and all had underlying liver disease. Two of the men had purchased raw oysters from street vendors, and 2 had reportedly ordered raw oysters in a restaurant (1 in ceviche). It is

not known how the fifth man contracted the infection. It is believed that the 5 men ingested raw oysters shipped from the Gulf Coast, where the warm salty waters, especially in the summer months, are conducive to the growth of the bacterium. In contrast, oysters from the Northern Pacific coast do not represent a risk, as they come from much colder waters.

In people with healthy immune systems and no underlying disease, *V vulnificus* may cause a self-limited gastroenteritis. However, in those with liver disease, cancer, AIDS, or other immune suppressive illness, it frequently results in fatal infection with bacteremia, septic shock, bullous skin lesions, and necrotic extremities. Increased public awareness and additional safety measures could prevent this infection. Raw oysters from the Gulf should be avoided, especially during the summer months, unless they have been pasteurized or frozen. ■

## Georgian Woman Dies of WNV Infection

**Source:** ProMED-mail posts, August 17 and August 21, 2001. promed@promed-mail.org.

An elderly female resident of Atlanta, Ga, died of West Nile Virus (WNV) infection on August 11, representing the first fatality from WNV in the United States this year. She had been admitted to Grady Memorial Hospital with meningoecephalitis 12 days earlier. Although physicians had been placed on alert for WNV, the infection was confirmed by the CDC after her death. She was a resident of an elderly housing unit in downtown Atlanta and had not traveled outside of the county.

Moving down the eastern seaboard this summer, WNV has become a significant problem in the Southeast, especially in Georgia and Florida. Numerous birds in both states have been found infected, as well as 28 horses and 3 sen-

nel chickens. No other deaths from WNV have occurred this summer, although in addition to this case in Georgia, infection has been confirmed in 4 persons from Florida and 1 from Staten Island, New York. ■

## Resistant Bacteria Prevalent in Healthy Children

**Source:** Millar MR, et al. *J Antimicrob Chemother*. 2001;47:605-610.

Careful screening of healthy British children has found that many harbor resistant bacteria in oropharyngeal secretions and stools, even though many had not been exposed to antibiotics. Bacterial cultures were performed on mouth-washes obtained from 539 children aged 7-8 years. In 105 children for whom this information was available, none had received tetracycline, chloramphenicol, or third-generation cephalosporins within the past year. While only 17 children (3.2%) were found to be infected with Group B beta-hemolytic streptococci (1 of which was resistant to tetracycline), *S aureus* was found in 200 (37%) of the specimens. Two percent of these were methicillin resistant.

*Hemophilus* spp. were isolated from 72% of samples, 17% of which were resistant to ampicillin and 13% were resistant to erythromycin. *Branhamella catarrhalis* was isolated from 74% of specimens, 8% of which were erythromycin resistant and 4% were tetracycline resistant. Interestingly, 17 of 335 (5.1%) children tested for resistant gram-negative bacteria in stool specimens had isolates resistant to third generation cephalosporins. Six of these isolates produced extended spectrum beta-lactamases. In addition, 11% of gram-negative bacteria isolated in stools had high-level resistance to chloramphenicol. Even healthy children without recent exposure to antibacterials frequently carry organisms with broad antibacterial resistance. ■