

Antibiotic Exit Strategy Can Reduce Resistance

BY BETSY BATES

Los Angeles Bureau

SANTA BARBARA, CALIF. — Tetracyclines may wind up being the safest, cheapest, easiest to tolerate nonintravenous drugs available to treat future cases of methicillin-resistant *Staphylococcus aureus*, and that should be reason enough to get on the bandwagon to preserve tetracycline's potency through wise use, according to one dermatologist.

"I view the tetracyclines as the drugs I would like to save ... for the future," Dr. Hilary Baldwin said at the annual meeting

of the California Society of Dermatology and Dermatologic Surgery.

Dermatologic prescribing of antibiotics for acne and rosacea, as well as for skin infections, may be driving resistance in unexpected ways, said Dr. Baldwin of the State University of New York, Brooklyn.

"The message is getting out to dermatologists and nondermatologists that antibiotic resistance is here, it's now, and we have to worry about it," she said.

Her strategy has been to "utilize antibiotics when necessary, but devise an exit strategy on day 1."

For example, she may prescribe a topi-

cal retinoid, hormonal therapy, or an androgen receptor blocker alongside an antibiotic, so that the time clock will begin ticking right away for nonantibiotic workhorses that don't necessarily act quickly.

By the time a topical retinoid really is beginning to take hold—at about 12 weeks—the antibiotic will have produced quick, patient-pleasing results and can be discontinued. "On the day you stop topical or oral antibiotics [while continuing the alternative medication], also start benzoyl peroxide," she advised. Even though it is bactericidal, no resistance develops in response to benzoyl peroxide, she said.

"What I don't think people worry about are topical antibiotics," she said, noting that the timing of serious resistance problems coincides with the introduction of topical erythromycin and clindamycin.

More specific evidence arrived in 2003 with a disturbing study showing tetracycline-resistant *Streptococcus pyogenes* in the throats of 85% of long-term users of topical or oral antibiotics, compared with 20% of controls (Arch. Dermatol. 2003; 139:467-71).

Another study looked retrospectively at the charts of 118,496 patients, finding that patients who had received 6 weeks or more of topical or systemic antibiotics were at more than a twofold risk of upper respiratory infections (Arch. Dermatol. 2005;141:1132-6).

"The issue is bigger than [*Propionibacterium*] *acnes* resistance or upper respiratory infections," Dr. Baldwin said. "The whole thing ends up being a story of more severe organisms and MRSA."

Community-acquired MRSA is increasingly familiar to dermatologists, since it presents as skin and soft-tissue infections in 85% of cases. Abscesses often occur below the waist; pain is more severe than the clinical appearance of lesions might suggest.

"The treatment is drainage, drainage, drainage," she said, adding that it most often works in the sentinel patient. Contacts at home, especially siblings, may develop



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DR. BALDWIN

Current Antibiotic Choices for MRSA

Currently Available Antibiotics

Tetracyclines: Cover 80% of MRSA.

Penicillins/cephalosporins: Ineffective against MRSA.

Trimethoprim-sulfamethoxazole: Reasonable, cheap; sufficient to cover most MRSA but not *Streptococcus*.

Fluoroquinolones (ciprofloxacin, levofloxacin, etc.): Promote emergence of MRSA.

Lincosamides (clindamycin): Covers some MRSA, but resistance is growing.

Glycopeptides (vancomycin): Resistance is increasing. Not effective for many serious infections.

Streptogramins: Effective, but require intravenous dosing. They are very expensive and have major adverse effects.

Oxazolidinones (linezolid, etc.): Oral, but very expensive, with significant adverse effects. Resistance is developing.

Daptomycin: Intravenous only, but effective for skin/soft tissue infections.

Tigecycline: The newest antibiotic is intravenous only, but very effective.

Drugs on the Horizon

Dalbavancin: Pfizer Inc. withdrew the application for this injectable.

Telavancin: The application for this injectable was suspended.

Ceftobiprole: The application for this new cephalosporin was suspended.

Oral antibiotics in development for MRSA: None.

Sources: Dr. Baldwin, Dr. Paul Holtom

severe necrotizing pneumonia and death.

When MRSA does get nasty, "tetracyclines are probably the easiest drugs that we have to treat it," she said. (See box.)

"Do we overprescribe antibiotics? Of course we do," Dr. Baldwin said. Dermatologists write 8-9 million prescriptions a year for antibiotics and 40%-50% of all prescriptions for tetracyclines.

The reasons are many: not wanting to miss infections, avoiding medicolegal problems, and basically just wanting a quick response to inflammatory conditions such as acne and rosacea. "Sometimes patients just wear us the heck down," she admitted.

Dr. Baldwin disclosed ties with several pharmaceutical companies. ■

Vaccine Effect Might Depend on Needle Length, Not Site

BY HEIDI SPLETE

Senior Writer

WASHINGTON — Vaccine site has little impact on the vaccine's effect, but using a 25-mm needle instead of a 16-mm needle may be more effective in administering flu vaccine to older patients, based on results of a study conducted at the Mayo Clinic in Rochester, Minn.

The Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices currently recommends influenza vaccination for all adults older than 50 years, but studies have shown that vaccine efficacy may be reduced in older adults, said Dr. Prikish Tosh, an infectious disease fellow at the Mayo Clinic.

"We wondered whether vaccine site had any effect," said Dr. Tosh, who presented the study results at the joint annual meeting of the Interscience Conference on Antimicrobial Agents and Chemotherapy and the Infectious Diseases Society of America.

He and his colleagues also examined whether a longer needle would increase penetration into the muscle and affect immunogenicity and reactogenicity in older patients. Flu vaccine manufacturers recommend 25-mm needles, but some single-dose vials are currently packaged with 16-mm needles, Dr. Tosh said.

In this study, Dr. Tosh and colleagues randomized 133 adults aged 50-88 years to receive the trivalent inactivated influenza vaccine in either the deltoid muscle or the deltoid fat pad. The groups were similar in terms of age, gender, weight, and other demographic characteristics. Patients who were immunocompromised or had previously received the vaccine were excluded.

Antibody titers for each of the three strains of influenza in the vaccine were measured at baseline and at 4-6 weeks after vaccination.

The researchers found no significant differences in antibody response rates between the two groups. "The results ... were surprising," Dr. Tosh said. "At baseline, the antibody levels in the two groups were the same. However, after vaccination, we were expecting to see a substantial difference between the two groups. But we didn't see any difference for any of the three vaccine components."

Similarly, the researchers found no significant differences in immunogenicity between those who seroconverted and those who did not. "Injecting in the fat pad did increase reactogenicity," Dr. Tosh noted. The patients who received deltoid fat pad injections reported significantly more redness and swelling, compared with those who had intramuscular injections (34% and 5%, respectively).

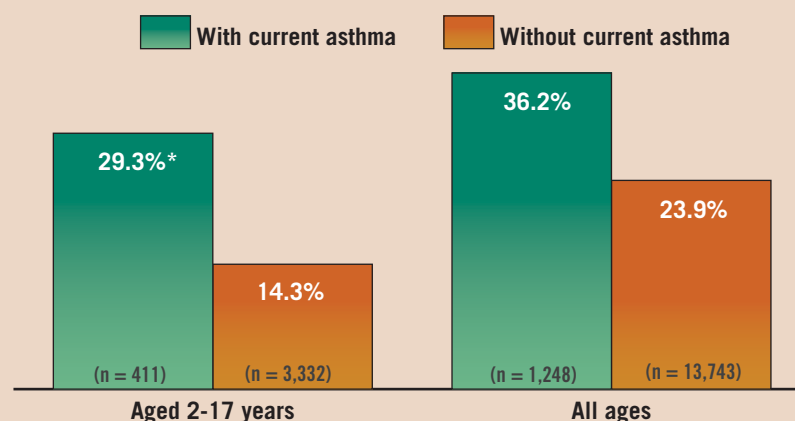
In a subset analysis, 66 patients underwent ultrasound before vaccination to assess fat pad thickness. "Based on the ultrasound, a 25-mm needle would have worked for 97% of the subjects," Dr. Tosh noted. A 25-mm needle would have penetrated the muscle in all of the men and all but 3% of the women, but a 16-mm needle would have failed to penetrate the

muscle in 26% of men and 51% of women, he said.

Based on these findings, the use of 25-mm needles, compared with 16-mm needles, increases the likelihood of injection into the muscle, which reduces the reactogenicity of flu shots in the elderly, Dr. Tosh said. Dr. Tosh stated that he had no financial conflicts to report. ■

DATA WATCH

Influenza Vaccination Utilization Is Higher for People With Asthma



*Statistically significant compared with children who do not currently have asthma.
Source: 2005-2006 data, Centers for Disease Control and Prevention