

Letters to the Editor

First Report of *Neisseria meningitidis* Intermediately Resistant to Penicillin in Croatia

Neisseria meningitidis is one of the leading causes of bacterial meningitis and sepsis in Croatia. Meningococcal strains with decreased susceptibility to penicillin (MIC > 0.12 mg/ml) have been reported worldwide since 1985 (1, 3–7). Here we report the first identification of an isolate intermediately resistant to penicillin in Croatia.

An 8-month-old male child presented to the Emergency Department at University Hospital for Infectious Diseases, Zagreb, Croatia, with a 2-day history of fever (>39°C). The child was somnolent, with characteristic meningeal signs and petechia on its scrotum and entire extremities. The white blood cell count was 5,800/mm³, with 51 segmented neutrophils and 32 lymphocytes. The cerebrospinal fluid (CSF) contained 92,416 cells/mm³, the protein concentration was 2,040 mg/liter, and the glucose concentration was 0.3 mmol/liter. Gram-negative diplococci were visible on a Gram-stained smear, and latex agglutination performed on the CSF was positive for *N. meningitidis* serogroup B (Slidex meningite-Kit 5; bioMerieux, Marcy-l'Étoile, France). Ceftriaxone therapy was instituted, and household contacts were treated with rifampin.

Cultures of both blood and CSF grew *N. meningitidis* serogroup B. A penicillin MIC of 0.094 mg/ml was determined with the Etest (AB Biodisk, Solna, Sweden) on Mueller-Hinton agar containing 5% sheep blood, incubated in CO₂. The MIC of 0.12 mg/ml was determined at the Centers for Disease Control and Prevention according to the recommendations of the National Committee for Clinical Laboratory Standards, by using the broth microdilution method with Mueller-Hinton broth containing 5% lysed horse blood (2). Consequently, treatment with ceftriaxone was continued. Molecular subtyping by multilocus enzyme electrophoresis indicated that the electrophoretic type (ET) identified in the isolate, 1155, was frequently found in other *N. meningitidis* serogroup B isolates from Croatia, but interestingly this ET was not a member of the well-described ET-5 complex.

The child's condition was defined as severe. He was febrile and somnolent during the first 9 days of hospitalization. A computed tomography scan of the child's head showed subdural effusion in the frontal, temporal, and parietal regions, and therefore cortisone was added to the therapy protocol. CSF and blood collected on days 2, 6, and 9 following the administration of antibacterial therapy were all negative by latex agglutination and culture. The patient was discharged on day 27 in good condition.

This is the first report of identification of *N. meningitidis* intermediately resistant to penicillin in Croatia. Surveillance for antimicrobial resistance of meningococci is needed for early detection of isolates, such as that described in this report, that might affect recommendations for treatment.

REFERENCES

1. Botha, P. 1998. Penicillin-resistant *Neisseria meningitidis* in Southern Africa. *Lancet* **351**:54.
2. National Committee for Clinical Laboratory Standards. 2000. Methods for dilution antimicrobial susceptibility tests for bacteria that grow aerobically, 5th ed. Approved standard M7–A5. National Committee for Clinical Laboratory Standards, Wayne, Pa.
3. Riley, G., S. Brown, and C. Krishnan. 1990. Penicillin resistance in *Neisseria meningitidis*. *Lancet* **334**:997.
4. Rohner, P., B. Pepey, B. Hirschel, and R. Auckenthaler. 1992. Typing and sensitivity of meningococci isolated in Switzerland 1988–1990. *Schweiz. Med. Wochenschr.* **122**:224–228.
5. Saez-Neito, J. A., D. Fontanals, J. Garcia de Jalon, V. Martinez de Artola, P. Pena, M. A. Morera, R. Verdaguier, I. Sanfeliu, C. Bello-Biasco, J. L. Perez-Saenz, and J. Casal. 1987. Isolation of *Neisseria meningitidis* strains with increase of penicillin minimal inhibitory concentrations. *Epidemiol. Infect.* **99**:463–469.
6. Sutcliffe, E. M., D. M. Jones, S. El-Sheikh, and A. Percival. 1998. Penicillin-insensitive meningococci in the UK. *Lancet* **351**:657–658.
7. Tzanakaki, G., C. C. Blackwell, J. Kremastinou, C. Kallergi, G. Kouppari, and D. M. Weir. 1992. Antibiotic sensitivities of *Neisseria meningitidis* isolates from patients and carriers in Greece. *Epidemiol. Infect.* **108**:449–455.

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