11. Lepper, M. H., and H. F. Dowling. 1951. Treatment of pneumococcal meningitis with penicillin compared with penicillin plus aureomycin. Arch. Internal Med. 88:489-494.

12. Lepper, M. H., P. F. Wehrle, and N. Blatt. 1952. Treatment of Hemophilus influenzae meningitis: Comparison of aureomycin alone versus aureomycin, streptomycin and gantrisin. Am. J. Diseases Children 83:763-768.

13. McCabe, W. R., and G. G. Jackson. 1965. The treatment of pyelonephritis. Bacterial, drug and host factors in success or failure among 252 patients. New Engl. J. Med. 272:1037-1044.

14, Manten, A., and M. J. Wisse. 1961. Antagonism between antibacterial drugs.

Nature 192:671-672.

15. Mathies, A. W., Jr., J. M. Leedom, L. D. Thrupp, D. Ivler, B. Portnoy, and P. F. Wehrle. 1966. Experience with ampicillin in bacterial meningitis. Antimicrobial Agents and Chemotherapy-1965, p. 610-617.

16. Olsson, R. A., J. C. Kirby, and M. J. Romansky. 1961. Pneumococcal meningitis in the adult. Clinical, therapeutic and prognostic aspects in forty-three patients. Ann. Internal Med. 55:545-549.

17. Smith, M. R., W. D. Perry, J. W. Berry, and W. B. Wood, Jr. 1951. Surface phagocytosis in vivo. J. Immunol. 67:71-74.

18. Strom, J. 1955. The question of antagonism between penicillin and chlortetracycline, illustrated by therapeutical experiments in scarlatina. Antibiot. Med. 1:6–12.

19. Strom, J. 1961. Penicillin and erythromycin singly and in combination in scarlatina therapy and the interference between them. Antibiot. Chemotherapy 11:694-697.

20. Thrupp, L. D., J. M. Leedom, D. Ivler, P. F. Wehrle, J. F. Brown, Jr., A. W. Mathies, Jr., and B. Portnoy. 1964. *H. influenzae* meningitis: a controlled study of treatment with ampicillin. Postgrad. Med. J. (Suppl.) 40:119-125.

21. Wallace, J. F., R. H. Smith, M. Garcia, and R. G. Petersdorf. 1967. Studies on the pathogenesis of meningitis. VI. Antogonism between penicillin and chloram-

phenicol in experimental pneumococcal meningitis. J. Lab. Clin. Med. 70:408-418.

22. Wehrle, P. F., A. W. Mathies, J. M. Leedom, and D. Ivler. 1967. Bacterial meningitis. Ann N.Y. Acad. Sci. 145:488-498.

APPENDIX IX

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AMPICILLIN IN THE TREATMENT OF ACUTE SUPPURATIVE MENINGITIS 1

(By Fred F. Barrett, M.D., Warren A. Eardley, M.D., Martha D. Yow, M.D., and Howard A. Leverett, Houston, Tex.)

During 1963 and 1964 in vitro sensitivity studies indicated that ampicillin was effective against the three common etiologic agents of bacterial memningitis in children. Blood and cerebrospinal fluid studies revealed high blood levels and detectable cerebrospinal fluid levels of ampicillin in patients with and without meningeal disease but the mean cerebrospinal fluid/serum ratio was significantly higher in patients with bacterial meningitius. Twenty-eight children with acute bacterial meningitis were treated with ampicillin alone. No significant differences in mortality or complications were noted when the results of this therapy were compared with those in two groups of patients treated with conventional "triple therapy."

Ampicillin, alpha-aminobenzyl penicillin, became available in England in 1961. This semisynthetic penicillin is of particular interest since it is bactericidal against both gram-positive and gram-negative bacteria. Ampicillin has been found to be highly effective in vitro against Diplococcus pneumoniae, Neisscria meningitidis, and Hemophilus influenzae, to achieve good blood levels when administered by oral and parenteral routes, and to have a low incidence of side

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