SALMONELLA SEROVARS IDENTIFIED AT THE CENTRE FOR ENTEROBACTERIAEAE OF PALERMO OVER THE 5-YEAR PERIOD 1983-87

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Salmonellosis is becoming an increasing public health problem in many countries. Serotyping and assessment of antibiotic resistance are useful tools, which assist in understanding the epidemiology of Salmonella infections. In this respect, the Centre of Enterobacteriaceae of Southern Italy provides helpful information on the changing pattern of Salmonella serovars in this geographic area. This paper reports the distribution of serovars and their antibiotic susceptibility in the years 1983-1987. In particular, because of their peculiar trends during this 5-year period, epidemiological features of Mbandaka, Corvallis, Dublin, Infantis and Wien serovars are described.

INTRODUCTION

Salmonella infections are a significant public health problem in many geographic areas (1, 4, 8, 10, 11, 12). Centres of Enterobacteriaceae of Northern, Central and Southern Italy receive Salmonella isolates from public health and clinical microbiology laboratories in the areas of activity and provide valuable information on changing patterns of Salmonella serovars and their antibiotic susceptibilities (5, 6, 7, 15, 19). Although the passive surveillance system adopted by these centres is obviously unable to provide complete quantitative documentation of the actual distribution of Salmonella serovars in Italy, reports from the Centres do contribute information on serovar trends in the areas they serve. Furthermore, comparison of these data with findings of similar centres in different countries permits identification of geographical variations in serovar distribution.

This paper aims to provide information on Salmonella serovars identified at the Southern Italy Centre of Enterobacteriaceae over the 5-year period 1983-1987. The 5-year trends of five Salmonella serovars of special epidemiological interest are elucidated.

MATERIALS AND METHODS

During the period 1983-1987, 5718 isolates of Salmonella were studied at the Southern Italy Centre of Enterobacteriaceae (C.E.P.I.M.). The isolates had been received from public health and hospital laboratories throughout southern Italy and included strains from human, animal and environmental sources. All isolates were submitted to biotyping and serotyping by previously described methods (9). Strains were tested by the disk diffusion method (2) for their susceptibility to the following antibiotics: ampicillin (Ap), cephalothin (Cf), chloramphenicol (Cm), gentamicin (Gm), kanamycin (Km),...
streptomycin (Sm), tetracycline (Tc), tobramycin (Nn), trimethoprim-sulfamethoxazole (Sxt). Salmonella isolates of special epidemiological interest were further investigated for plasmid content and restriction endonuclease digestion pattern analysis (3, 13).

**RESULTS**

During the 5-year surveillance period, 5718 strains of Salmonella were examined. The majority (92%) of isolates were of human source. Tables 1 and 2 show the distribution of identified serovars. A total of 134 serovars were encountered. The 45 most frequent serovars accounted for 95% of the isolates, while Typhimurium, Infantis, Typhi, Wien, Enteritidis, Panama and Anatum accounted for 58.8% of the total. Of the 134 recognized serovars, 33 had never been previously isolated in southern Italy. During the five years, only 14 environmental isolates and 331 from animals were referred to the C.E.P.I.M.; however, despite the small number of isolates examined, a large variety of serovars could be identified among the strains from animal source (Table 3).

In Table 4 resistance to individual and multiple antibiotics of some of the common serovars are presented. Resistance to two or more antimicrobial agents was seen in 91.7% of serovar Wien isolates, in 76.7% of serovar Dublin isolates and in 24% of serovar Typhimurium strains tested. Among isolates of the latter serovar, the most frequent resistances were to streptomycin and tetracycline. SmTc and AmSm were the drug combinations most commonly found among the 35 resistance patterns detected over the 5-year period.

However, since 1984, the frequency of multiple drug resistance has gradually declined, while susceptibility to streptomycin has increased (Table 5). Among other serovars, multiple resistance was less common, except for individual serovars too infrequently isolated to consider their resistance...