Letters to the Editor

Historical Yearly Usage of Vancomycin

The reasons for the emergence and spread of vancomycin-resistant enterococci are not yet fully understood. Nevertheless, various hypotheses and proposals which are being vigorously and extensively debated have been advanced (1–7, 10, 11, 15, 17, 19). The use of avoparcin, another member of the glycopeptide class of antibiotics, as a growth-promoting agent in the production of food animals is often cited as playing a role in the spread of glycopeptide-resistant microorganisms (1, 18, 20). Although it is well recognized that vancomycin resistance is more prevalent in the United States than in Europe, it has not been explained why avoparcin usage fails to correlate with the different epidemiologies of resistance between the two continents; avoparcin was never approved for use in animals in the United States, in contrast to its broad use as a growth-promoting agent in Europe (5, 7, 10).

In order to find correlations and explanations, several studies have attempted to document the clinical usage of vancomycin, but these studies have necessarily been relatively limited in the scope of their survey (11, 12, 14, 16). The present report provides a much more complete description of the overall usage pattern of vancomycin over a period of more than 20 years (Fig. 1). The data for the years 1975 to 1983 were compiled from the Lilly database during the period in which Lilly was the sole supplier of vancomycin. The data for the years 1984 to 1996 have been obtained from IMS International.

Vancomycin use began to accelerate in the early 1980s, beginning a trend that further accelerated when oral formulations of vancomycin became available in the mid-1980s. However, it should be noted that oral use of vancomycin long preceded the appearance of commercial oral formulations, because the injectable formulation could simply be administered in an oral manner (9, 13). Orally administered vancomycin is not absorbed and is used to treat intestinal infections, especially those associated with Clostridium difficile. There is continuing debate concerning the respective roles of parenteral versus oral modes of vancomycin administration as risk factors for the development and spread of vancomycin resistance (11, 15). Vancomycin usage continued to rise rapidly worldwide throughout the 1980s and early 1990s. The slight decline after 1994 reflects the beginning of attempts to restrict vancomycin use in response to concerns about the spread of vancomycin-resistant bacteria (8).

A more-detailed account of vancomycin usage by both the intravenous and oral formulations over the past 12 years within several major markets is presented in Table 1. These data were obtained from IMS International. First, it is readily apparent that greater quantities of vancomycin were used in the United States and major European markets.

TABLE 1. Yearly vancomycin usage (all suppliers, all forms) in the United States and major European markets

<table>
<thead>
<tr>
<th>Year</th>
<th>United States</th>
<th>France</th>
<th>Germany</th>
<th>Italy</th>
<th>United Kingdom</th>
<th>Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>1,900 100 200 0 21 0 26 0</td>
<td>42 5 9 0</td>
<td>1985</td>
<td>2,300 300 300 0 26 0</td>
<td>29 0 45 5 8 0</td>
<td>1986</td>
</tr>
<tr>
<td>1989</td>
<td>5,300 700 380 36 145 0</td>
<td>83 0 79 14 15 4</td>
<td>1989</td>
<td>6,800 800 400 430 165 0</td>
<td>105 0 112 16 17 6</td>
<td>1990</td>
</tr>
</tbody>
</table>

a Inj., injectable.

FIG. 1. Usage of vancomycin (in kilograms) in the United States, France, Italy, Germany, United Kingdom, and The Netherlands.
The assistance of Blair Jarratt and Judy Shutt at IMS International is gratefully appreciated by the authors.

REFERENCES

Herbert A. Kist
Elanco Animal Health Research & Development
2001 West Main Street
Greenfield, Indiana 46140-0708

Diane G. Thompson
Elanco Animal Health Market Research
Lilly Corporate Center
Indianapolis, Indiana 46285-2047

Thalia I. Nicas
Infectious Diseases Research
Eli Lilly and Company
Indianapolis, Indiana 46285-0428