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Subtyping of Pyocin Type 1 *Pseudomonas aeruginosa*: One Year of Experience

HAROLD D. ROSE, JANICE B. BABCOCK, AND MARGARET G. HECKMAN

The Pathology and Medical Services of the Wood Veterans Administration Center, and Divisions of Pathology and Medicine, Medical College of Wisconsin, Milwaukee, Wisconsin 53193

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Subtyping of pyocin type 1 *Pseudomonas aeruginosa* strains has increased the sensitivity of an epidemiological tool used by the Hospital Infection Committee in surveillance studies.

With the incidence of gram-negative bacillary infections increasing over the past 10 years, these organisms have replaced *Staphylococcus aureus* as the most important agents in nosocomial infections (3). Until now the surveillance of these hospital infections has been hindered by the lack of a practical method of epidemiological typing. Gillies and Govan (1), in 1966, proposed a standardized technique for pyocin typing of *Pseudomonas aeruginosa*.

TABLE 1. *Subtyping pattern and distribution of 220 patients*

Gillies and Govan subtype	Inhibition pattern[a]					Distribution of 220 patients by subtypes	
						Patients	Per cent
1-A	+	+	+	+	+	15	6.8
1-B	−	+	+	+	+	64	29.1
1-C	−	−	+	+	+	82	37.3
1-D	+	−	+	+	+	45	20.5
1-E	−	+	+	−	+	0	0.0
1-F	−	−	−	−	−	2	0.9
1-G	−	−	+	−	+	0	0.0
1-H	−	+	−	+	+	7	3.2
No designation	−	−	−	+	−	5	2.2

[a] Symbols: +, inhibition; −, no inhibition.

We have recently reported (Amer. J. Clin. Pathol., *in press*) our experience with pyocin typing of 1,500 *P. aeruginosa* isolates (639 patients) by using the indicator strains and procedure described by Gillies and Govan (1). The procedure was readily adapted to the diagnostic clinical laboratory. Although 52.1% of our clinical isolates were type 1, the Hospital Infection Committee has found pyocin typing to be a useful marker for the study of nosocomial infections. Govan and Gillies (2) have recently added five additional strains for subdividing type 1 strains. This report describes our 12-month experience with these strains to subtype all type 1 organisms as a step to increase significantly the specificity of this procedure.

From 1 February 1970 to 1 February 1971, we typed 1,245 *P. aeruginosa* isolates that were cultured from 437 hospitalized patients at the Veterans Administration Center, Wood, Wis. All indicator strains used for typing or subtyping were received from the Center for Disease Control, Atlanta, Ga., and were from the original strains of Gillies and Govan whose procedure was followed, except that the indicator strains were applied with glass rods.

Of the 1,245 isolates of *P. aeruginosa*, 592 (47.6%) were found to be type 1. Since a number of isolates represented repeated cultures from the same patient, grouping of the isolates by patient was considered more significant clinically; thus, we found that 220 patients carried type 1 organisms. The single predominant subtype carried by each patient is summarized in Table 1. One other inhibition pattern, − − − + −, not included in Govan and Gillies' subtypes, was also observed in strains from five patients (2.2%).

Previously, the high percentage of type 1 limited the usefulness of this epidemiological tool. However, the addition of five indicator strains to subtype all type 1 organisms has yielded a distribution of subtypes that permits more precise labeling of individual *P. aeruginosa* strains. The complete typing procedure has greater sensitivity and is now used by the Hospital Infection Committee in surveillance studies.

LITERATURE CITED

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