

## A NOTE ON THE NEW ANTIBIOTIC "GABBROMICINA" (Aminosidine Sulphate)

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The Bacteriological Laboratory of the General Hospital, Singapore, is frequently visited by various agents offering new drugs for medical use. During the last year a considerable number of new antibiotics have been examined. None of them proved more efficacious than any of the already existing drugs on the market. Some were inactive.

Recently, the drug named "Gabbromicina, a product of "Farmitalia", Milano, drew our attention. On a preliminary test against representatives of various bacteria, including known pathogens, it was shown to be superior to the ordinary antibiotics in daily use, as seen in Table 1.

The only drug sufficiently effective against *Ps.aeruginosa* and all the other organism was gabbromicina. Neomycin and Kanamycin were next effective.

The experiment was further extended. The tests involved 91 strains of *Proteus*, *E. coli*, *Intermediate coli-aerogenes*, *Ps. aeruginosa*, *Str. faecalis* and *Staph. aureus* organisms. These strains were selected at random from among those showing considerable resistance to the ordinary antibiotics in routine use. Table 2 presents results of sensitivity tests arranged according to degrees of inhibition of growth. The preliminary test was again confirmed. As regards *Str. faecalis*, it was noted that other drugs like Erythromycin and Rovamycin were more effective. Figure I illustrates the antibiotic spectrum of Gabbromicina in relation to other eleven drugs tested. Gabbromicina was practically the only antibiotic to which no organism showed complete or absolute resistance.

Gabbromicina is a new antibiotic discovered in the Farmitalia Research Laboratories, Milano,

by Canevazzi and Scotti (1959). It is a water-soluble oligosaccharide found in the metabolites of a newly isolated strain of *Streptomyces krestomyceticus*. It is related to but is not identical with Streptomycin, Viomycin or Kanamycin. It is an Aminosidine Sulphate, having the formula of  $C_{23}H_{45}N_5O_{14} \cdot 2H_2SO_4$  and can be prepared for oral or parenteral administration. This antibiotic has already appeared under the names of "Crestomycin", "Antibiotic 1600", F.I.5853 and "Farmiglu-cina". From research done in Italy, the drug is similar in activity to Neomycin, but is less toxic for parenteral use. It is claimed to have a broad antibiotic spectrum against gram + and gram -- microorganisms including many resistant staphylococci. This was confirmed in our tests. However, we did not find it sufficiently effective against our *Str. faecalis* strains, as already mentioned. On the other hand it produced a good inhibition zone against a locally isolated strain of *Cryptococcus neoformans*.

As far as laboratory tests are concerned, this drug is promising. The Italian authors reported successful results in both experimental animals and in patients. It is now up to our clinicians to assess this drug as regards its safety from side effects and its effectiveness in various infections. It should at first be tried under careful observation. The producers themselves mention oto- or nephro-toxicity if treatment exceeds 10-15 days or if the total dosage used exceeds 15 grams in a single course.

### REFERENCE

- Canewazzi G., Scotti T., 1959, "Descrizione di uno streptomycete (*Streptomyces chrestomyceticus*) sp. nova produttore del nuovo antibiotico amminosidina". *Giorn. Microbiol.* 7, 242.

TABLE 1.

	Shigella flexneri	Shigella sonnei	Eberthella typhi	Sal. typhimurium	Proteus vulgaris	Pathogenic Escher. coli	Escherichia coli	Pseudomonas aeruginosa
Gabbromicina	++++	+++	+++	++++	+++	++++	+++	+++
Neomycin	+++	+	++	++	++	++	++	+
Kanamycin	+	++	+++	+++	+++	+++	+++	—
Streptomycin	++	+++	++++	++++	+++	++++	—	—
Chloromycetin	++++	++++	++++	++++	++	—	—	—
Terramycin	+++	+	+	+	—	+	—	—
Achromycin	+	+	—	—	—	+	—	—
Sulphatriad	++++	—	—	—	—	—	—	—
Penicillin	—	—	+	—	—	—	—	—

TABLE 2.

Organism tested	Degree of sensitivity	Gabbromicina	Penicillin	Streptomycin	Chloromycin	Achromycin	Terramycin	Sulphatriad	Neomycin	Rovamycin	Kantrex.	Sigm. aycin	Erythromycin
Proteus sp.	+++	12											
	++	1			8				1		8		
	+		13	13	1				6		3		
	—				4	13	13	13	7	13	2	13	13
Escherichia coli	+++	4											
	++	2			1						1		
	+	7		4	1	1			2		5		
	—	1	13	2	12	11	11	13	4	11	4	11	11
Intermediate Coli-Aerogenes	+++	2											
	++	4									3		
	+	7			12		1		2		6		
	—		13	12	1	13	12	13	4	10	4	10	10
Pseudomonas aeruginosa	+++	4											
	++	10		12	5			1					
	+	3			1			2	1		1		
	—		17	15	11	17	17	14	16	17	16	17	17
Staphylococcus aureus	+++	12	2			1			2		2		1
	++	6		1						2	3		3
	+	6		1	3		1	1	10	10	15	3	6
	—		22	22	10	23	23	23	6	2		1	4
Streptococcus faecalis	+++												2
	++												
	+	2			1					1			5
	—	8	5	1	1	10	10	10	9	3	5	9	1
Total Number of strains sensitive	+++ ++ +	79	2	8	22	1	2	2	17	18	43	3	17
Total Number of strains resistant	± —	12	89	82	69	89	88	88	60	59	40	64	60
% Sensitive		81%	2%	9%	24%	1%	2%	2%	23%	23%	52%	5%	22%

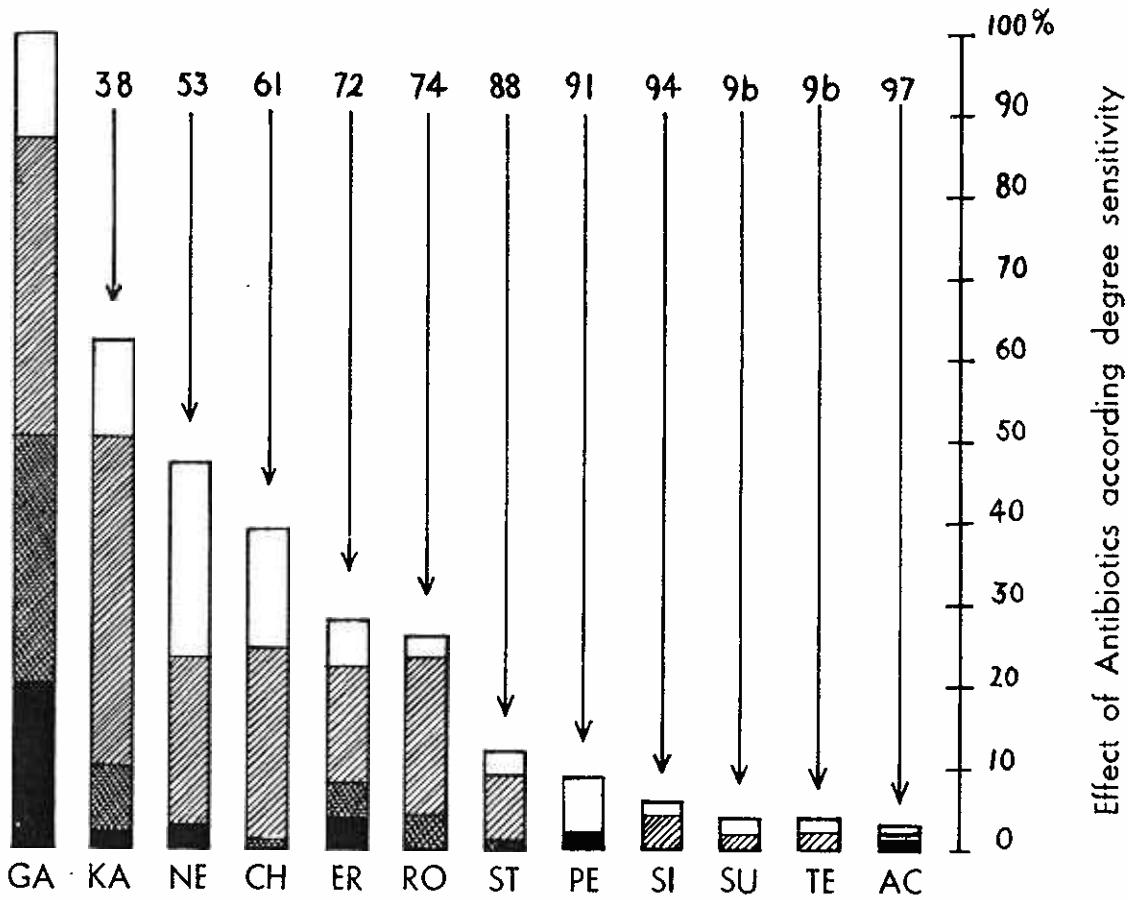


Figure 1. The antibiotic Spectrum of 12 drugs against a hundred strains of relative resistant Proteus, Coliaerogenes, Pyocyanus, Staph.aureus and Str.fecalis organisms.

GA = GABBROMICINA  
 KA = KANAMYCIN  
 NE = NEOMYCIN  
 CH = CHLOROMYCIN  
 ER = ERYTHROMYCIN  
 RO = ROVAMYCIN

ST = STREPTOMYCIN  
 PE = PENICILLIN  
 SI = SIGMAMYCIN  
 SU = SULPHATRIAD  
 TE = TERRAMYCIN  
 AC = ACHROMYCIN

■ Very sensitive (++)  
 ▨ Sensitive (+)  
 ▩ Slightly sensitive (+)  
 □ Relatively resistant (±)  
 ↓ Completely resistant (%) (-)