# Further Evaluation of "Valsyn-Gel" in Treatment of Chronic Subclinical Mastitis[1]

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## INTRODUCTION

In an earlier trial,[3] an antimastitic that contained oxytetracycline-hydrochloride and another one containing chlortetracycline-hydrochloride, neomycin-sulfate and dihydrostreptomycin-sulfate were compared with "Valsyn-Gel" (Eaton), an antimicrobial having furaltadone for its active principle.

The percentages of bacteriologically negative samples at 10, 19, 20, and 21 days after treatment varied from 97.92 to 81.25 for the oxytetracycline ointment; from 100 to 86.11 for the chlortetracycline ointment; and from 89.47 to 78.95 for a 3-dose schedule of Valsyn-Gel.

To have a clearer idea of the time that elapses from treatment of a quarter until organisms show again, a series of quarter-milk samples from each treated quarter was obtained consecutively at 3-day intervals up to 21 days posttreatment. Wherever possible extra samples were examined from any quarter that showed organisms for 1 to 3 consecutive days after the initial observation of organisms.

The animals used in these observations were from the dairy herd of the Agricultural Experiment Station of the University of Puerto Rico.

Before treatment, samples were drawn from quarters reported with clots or other abnormal conditions. If its sample showed *Streptococcus* and/or *Staphylococcus* upon bacteriological observation, the quarter was included in treatment and observation.

Sixteen quarters were treated with a single commercial tube-dose of a chlortetracycline-neomycin-dihydrostreptomycin ointment.

Twenty-two quarters were treated with nonsterilized Valsyn-Gel, 1 dose after each of 3 consecutive milkings, while an additional 22 quarters were similarly treated with sterile Valsyn-Gel.

Each quarter-milk sample was drawn aseptically into a sterile glass vial. After routine bacteriological incubation and handling, the stained smear was examined microscopically.

A total of 496 quarter-milk samples was considered in the observations.

All statistical calculations were done on the chi-square.

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[3] Rivera Anaya, J. D., and Berrocal, C. M., Evaluation of "Valsyn-Gel" in the treatment of chronic subclinical mastitis, *J. Agr. Univ. P.R.* 47, (3) 180-5, 1963.

## RESULTS AND OBSERVATIONS

### CHLORTETRACYCLINE-OINTMENT TREATMENT

All of the 13 quarters shedding *Streptococcus agalactiae* that were treated with a single dose of a commercial ointment containing chlortetracycline-neomycin-dihydrostreptomycin remained negative for the organism through the first 12 posttreatment days (table 1). On the 15-, 18-, and 21-day posttreatment observations there were 11, 12, and 11 negative quarters, respectively. Quarters that had been negative through at least 15 days posttreatment, and reached the end of normal lactation thereafter, were considered negative for the balance of the 21-day period and are included in the figures as such.

The efficacy for the chlortetracycline treatment was 100 percent through the first 12 days of posttreatment observations. At the 15-, 18-, and 21-day observations, the corresponding efficacy was 84.62, 92.31, and 84.62 percent.

Three additional quarters given the chlortetracycline treatment had a combination of a *Streptococcus* and a *Staphylococcus*. Observations on their samples at the appointed intervals were negative through the 12th posttreatment day. Two quarters had *Streptococcus* on their 15th-day sample and all were shedding *Streptococcus* in their 18- and 21-day samples. The corresponding treatment efficacy was 100 percent through the 12 days following treatment, but fell off to 33 percent at the 15-day posttreatment, and to zero at 18 days and subsequently.

The overall efficacy of this ointment in the 16 quarters was 100 percent through the first 12 days of posttreatment observations, falling to 75, 12 negative quarters, on the 15th and 18th days, and to 68.75, 11 negative quarters, on the 21st posttreatment day.

### VALSYN-GEL (NONSTERILE) TREATMENT

Of the 22 quarters treated with nonsterile Valsyn-Gel, using 1 dose after each of 3 consecutive milkings per quarter, 19, or 86.36 percent were negative at 3 days posttreatment, 17, or 77.27 percent, at the 6th and 9th days, while 14, or 63.63 percent, were negative on the 12th and 15th day posttreatment. Fifteen quarters, or 68.18 percent, were negative on the 18th day, and 14, or 63.63 percent, on the 21st day.

### VALSYN-GEL (STERILE) TREATMENT

Twenty-two quarters were treated with sterile Valsyn-Gel; individual quarters were dosed after each of three consecutive milkings.

Sixteen of the quarters, or 72.72 percent, were negative on the 3d and through the 12th day, posttreatment. The efficacy fell to 12 negative quarters, or 54.54 percent, on the 15th day and thereafter, and to 11 negative quarters, or almost 50 percent, on the 18th and 21st day posttreatment.

TABLE 1.—*Observations on efficacy of Valsyn-Gel, used to control mastitis, Agricultural Experiment Station, University of Puerto Rico dairy herd, Río Piedras, P.R.*

| Treatment | Total quarters treated | Negative quarters at posttreatment observations on days indicated | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3 | | 6 | | 9 | | 12 | | 15 | | 18 | | 21 | |
| | *Number* | *Number* | *Percent* | *Number* | *Percent* | *Number* | *Percent* | *Number* | *Percent* | *Number* | *Percent* | *Number* | *Percent* | *Number* | *Percent* |
| Chlortetracycline ointment | 16 | 16 | 100.00 | 16 | 100.00 | 16 | 100.00 | 16 | 100.00 | 12 | 75.00 | 12 | 75.00 | 11 | 68.75 |
| Valsyn-Gel, non-sterile | 22 | 19 | 86.35 | 17 | 77.26 | 17 | 77.26 | 14 | 63.63 | 14 | 63.63 | 15 | 68.18 | 14 | 63.63 |
| Valsyn-Gel, sterile | 22 | 16 | 72.72 | 16 | 72.72 | 16 | 72.72 | 16 | 72.72 | 12 | 54.54 | 11 | 49.99 | 11 | 49.99 |

From these trials, it seems apparent that the preparations had a high efficacy for the first 9 to 12 days following treatment, ranging from 73 to 100 percent. From the 15th to the 21st days, efficacy ranged between 50 and 92 percent.

The use of chlortetracycline ointment resulted in a higher proportion of negative quarters throughout the whole posttreatment observation period than did Valsyn-Gel, sterile or nonsterile.

No significant difference was observed between the efficacy of sterile and nonsterile Valsyn-Gel, in any of the posttreatment observation intervals.

Even though, on the basis of the percentage of negative samples observed throughout the 21-day posttreatment period, the chlortetracycline-ointment treatment appeared to be definitely superior to either sterile or nonsterile Valsyn-Gel, especially during the first 12 days of posttreatment observations (table 1), statistical analyses showed that there was no significant difference between the chlortetracycline-ointment treatment and either Valsyn-Gel treatment used.

On the basis of number of quarters treated and observed in the present trials, 16 for chlortetracycline ointment and 22 each for sterile and nonsterile Valsyn-Gel, it seems that experimental evidence is insufficient to demonstrate that these preparations differed in efficacy.

However, when the results on 59 quarters treated with the chlortetracycline ointment, and on 101 quarters treated with sterile Valsyn-Gel that were reported in an earlier observation, are pooled with those from the quarters in the present report, the ointment was shown to be a more efficacious mastitis treatment than Valsyn-Gel at the 1-percent level throughout the 21-day posttreatment period.

## SUMMARY

Further studies on the evaluation of "Valsyn-Gel" were carried out, using both sterile and nonsterile preparations of this drug and comparing it with a drug of choice currently used in mastitis control. The object of the study was to obtain a clearer idea of the time-lapse between the treatment of a quarter until organisms showed again, by taking a series of samples of each treated quarter obtained consecutively at 3-day intervals up to 21 days posttreatment.

Results showed that the therapeutic efficiency of the nonsterile product ranged from 86.4 percent 3 days after treatment to 63.6 percent 21 days after treatment. With the sterile product the efficiency ranged from 72.7 to 50.0 percent. The drug of choice, a chlortetracycline ointment, showed a higher efficiency than either of the two other products as evaluated. Nevertheless, it seems apparent that the preparations had a high therapeutic value for the first 9 to 12 days following treatment.

## RESUMEN

Se continuó el estudio de la evaluación del Valsyn-Gel, usando preparaciones esterilizadas y sin esterilizar del producto, comparándolas con otra droga corrientemente usada para el tratamiento de la mastitis. El objetivo primordial era tener una idea más precisa del tiempo que transcurre desde que se empieza el tratamiento de la infección hasta la aparición del organismo nuevamente en la leche, para lo cual se tomó una serie de muestras consecutivas de cada cuarto tratado a intervalos de 3 días hasta un límite de 21 días.

Los resultados demostraron que la eficiencia terapéutica del producto sin esterilizar varió desde el 83.4 por ciento a los 3 días de comenzar el tratamiento, hasta un 63.6 por ciento a los 21 días después. La eficiencia terapéutica para el producto esterilizado varió desde un 72.7 hasta 50.0 por ciento. La droga escogida para comparación demostró tener una eficiencia terapéutica mayor que cualesquiera de los dos productos evaluados. Sin embargo, es aparente que los tres productos poseen un valor terapéutico bastante alto durante los primeros 9 a 12 días subsiguientes al tratamiento.