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Effect of Prolonged Theelin Injections on Transplantable Mammary Adenofibroma.*

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We previously reported that theelin (estrone) administered to male white rats did not affect the growth rate of a transplantable mammary adenofibroma, that it failed to arrest fibrosis of these tumors and significantly retarded the normal body weight gains.[1] For a comparative study, 50 i.u. of aqueous theelin† was administered subcutaneously bi-weekly over a period of 165 to 368 days to 2 groups of male white rats implanted with mammary adenofibroma, Strain 1-a, morphologically and functionally similar to the tumor strain previously tested.[2]

Failure of transplant "take" occurred in 4 of 7 controls and 7 of 12 theelin-treated animals in the 300-day group; while in the 160-day-old animals, 3 of 8 controls and 6 of 12 theelin-treated failed to

TABLE I.

Mean Daily Changes in Body Weight (g/day).

Group I, 300-day Controls vs. 160-day Controls; Group II, 300-day Theelin vs. 160-day Theelin; Group III, 300-day Controls vs. 300-day Theelin; Group IV, 160-day Controls vs. 160-day Theelin.

Group	300 d. Control	160 d. Control	300 d. Theelin	160 d. Theelin	Diff.	P*
I	+.149	+.304			+.155	.3
II			—.002	+.227	+.229	.042†
III	+.149		—.002		—.151	.4
IV		+.304		+.227	—.077	.3

* P = probability of a difference as great or greater than that obtained occurring by chance alone. See Fischer, R. A., "Statistical Methods for Research Workers," London, Oliver & Boyd, 1934, 5th Ed., Chap. V.

† Taken by itself, this might be of significance, although on the borderline. But in view of the other high values for P, it must be regarded with suspicion.

* Aided by grants from the Rockefeller Fluid Research Fund of Stanford University School of Medicine, and from the Scientific Research Committee of the American Medical Association.

† We are grateful to Parke, Davis and Company for the donation of theelin used in this experiment.

1 Emge, L. A., Murphy, K. M., and Schilling, Walter, PROC. SOC. EXP. BIOL. AND MED., 1938, **38**, 21.

2 Emge, L. A., *Arch. Path.*, 1938, **26**, 429.

TABLE II.
Mean Daily Changes in Tumor Weight (g/day).
Group I, 300-day Controls vs. 160-day Controls; Group II, 300-day Theelin vs. 160-day Theelin; Group III, combined Controls vs. combined Theelin.

Group	300 d. Control	160 d. Control	300 d. Theelin	160 d. Theelin	Diff.	P
I	+.016	+.055			+.039	.5
II			+.053	+.023	—.030	.3
III‡	+.041		+.037		—.004	.9

‡ It is proper to combine these into one group, since there is no significant difference between the control animals and between the theelin-treated animals.

grow tumors. Mean daily body and tumor weight changes are recorded in Tables I and II.

It is evident that the effect of injections of 50 i.u. of aqueous theelin bi-weekly over a period of 165 to 368 days is not of statistical significance in relation to the growth of adenofibroma, Strain 1-a, and the body weight.

A microscopic study revealed that the tendency to change from adenofibroma to fibroma was not arrested by theelin. Wherever glandular tissue was preserved, ducts were found to predominate. A hyperplasia of ducts similar to Schimmelbusch's disease was seen occasionally. Unusual hyperplasia was noted in but one tumor of the 160-day theelin-treated group.

From the tumors removed in from 165 to 368 days, autotransplants were made into the opposite groin and theelin treatment continued as before for 74 days. Tumors derived from these implants grew slowly, with a further loss of adenomatous components and a marked tendency toward hyalinization.

Conclusions. Bi-weekly injections of 50 i.u. of aqueous theelin over a period of 165 to 368 days in male white rats implanted with adenofibroma did not prevent these tumors from undergoing fibromatous changes except in one tumor growing in a 160-day-old theelin-treated animal, which underwent massive glandular hyperplasia. A reduction in body weight after large doses of theelin, as reported previously, did not occur in either age group with smaller amounts given over longer periods, nor did the amount of theelin affect the daily growth rate of adenofibroma, Strain 1-a.