

TRH effect on prolactin serum levels in the Forbes-Albright syndrome

by

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A reliable radioimmunoassay for human prolactin has been recently developed⁽¹⁾ that overcomes some faults of the techniques used in the past time, based mainly on biological assay methods or on radioimmunoassays that determined human prolactin using as the antigens and standards prolactin from other animal species. This achievement prompts investigations in order to confirm previous results obtained about prolactin incretion and its regulation and about pathological statuses in which prolactin is involved.

Since the pioneering work of Tashjian and sl.⁽²⁾, who found that addition of TRH to cultures of cells from pituitary tumours stimulates prolactin secretion, TRH was found to stimulate prolactin release also *in vivo* (³⁻⁵, etc.). The assays used in these researches to determine prolactin were however not specific for prolactin of the human species. The interest arose to verify these results by means of the new method now available.

The research reported in the present paper deals with the effect of TRH on prolactin secretion in cases with the amenorrhea galactorrhea syndrome in the presence of a pituitary adenoma (Forbes-Albright syndrome).

MATERIALS AND METHODS

Two patients, of 29 and 33 years of age (S.M. and C.A.), were studied. The symptoms amenorrhea and galactorrhea were present in both women since respectively two and three years. Radiological investigation and pneumoencephalography revealed an enlarged sella turcica and the presence of a pituitary adenoma. Spontaneous galactorrhea was well evident in both cases.

Prolactin was determined by a double antibody radioimmunoassay, developed by Olivieri and al.⁽¹⁾. The reagents were supplied by Sero Immunochemicals, Rome. Thyrotropin releasing hormone (TRH) was supplied by Sero Immunochemicals. The test with this hormone was performed according to Ormston, with the technique adopted by the Workshop Conference on TSH, 1971⁽⁶⁾. The only difference introduced by us was the TRH dose used that was 500 mcg intravenously. The timing of blood sampling was the same proposed in the original test. Olivieri's range for prolactin normal values in serum is 10 ± 10 ng/ml⁽¹⁾.

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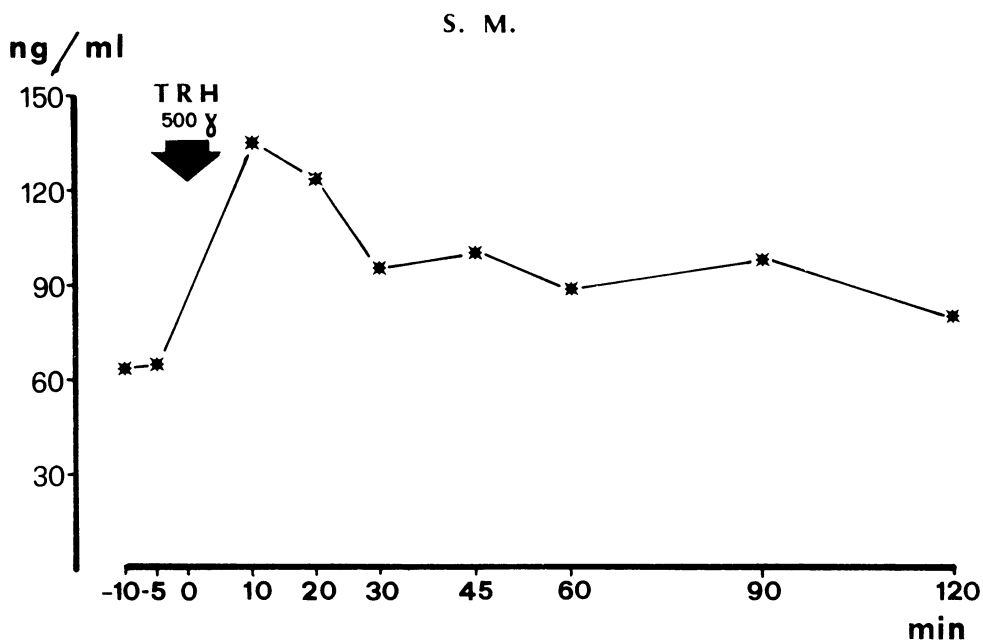


Fig. 1

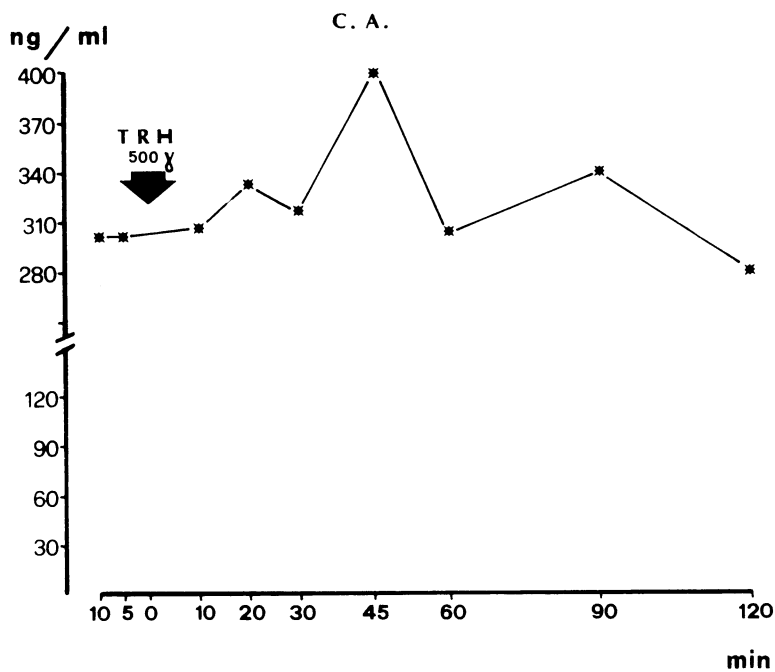


Fig. 2

RESULTS

Figures 1 and 2 depict prolactin behaviour upon TRH administration. It can be seen that prolactin basal levels were very high, but higher in case C.A. In both cases, the injection of TRH elicited an increase in prolactin serum levels. Though absolute values attained were higher in the case whose basal levels were higher, the percent increase obtained was larger in the case with low basal levels.

DISCUSSION

TRH seems to be effective in inducing a prolactin release also in the cases of the condition of amenorrhea galactorrhea occurring in the presence of a pituitary tumour. The difference in magnitude of the prolactin peak in the two cases observed may possibly be related to the different functional status of the prolactin producing tissues in the two cases. The occurrence of a smaller increase in the case with high values of serum prolactin may speak for a situation where hormone secretion occurs at a rate close to the highest possible, whereas in the other case the data indicate that the prolactin secreting tissue is still stimuable.

Under this respect our data differ from those by von Werders and al. ⁽⁷⁾, who found a « blunted » response to TRH in cases with Forbes-Albright syndrome; It may be remarked that perhaps the cases studied by the German Authors were similar to our case C.A., rather than to our case S.M. Our data may however confirm vonWerders and al.'s statement that prolactin producing tissue, whether pertaining to the adenoma or to pituitary residues has an autonomous secretion, since basal values are in any case much above normal prolactin serum levels.

The question arises wheter prolactin is produced by a « prolactin adenoma » as defined by Schaison and al. ⁽⁸⁾, or by pituitary tissue left intact by the adenoma, possibly chromophobe. In the latter case, the tumour may interfere with hypothalamic inhibition of prolactin secretion. We were able to demonstrate, in fact that in the presence of pituitary adenomas of various kinds prolactin, determined by the same specific method used for the present research, is consistently increased in serum ⁽⁸⁾.

SUMMARY

TRH is effective in enhancing prolactin serum levels in cases of Forbes-Albright's galactorrhea amenorrhea. Prolactin was determined by a homologous double antibody radioimmunoassay. The data obtained indicate that in Forbes-Albright syndrome prolactin producing tissue has an autonomous secretion, since hormone values are above normal basal levels. However, prolactin secretion may be further stimulated by TRH, as it happens in normal subjects.

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