PLASMA PROLACTIN IN WOMEN WITH MASTODYNIA

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SUMMARY

Plasma prolactin was measured by radioimmunoassay during the luteal phase in 22 patients affected by moderate or severe mastodynia and results were compared to those of 43 control subjects.

No consistent changes were seen during the course of the luteal phase in either group. No significant differences were noted between the prolactin levels of the two groups. No association was found between moderate or severe mastodynia and variations of plasma prolactin levels.

The mastodynia symptom refers to the cyclical pain and tenderness that involves both breasts during the premenstrual period with complete relief of symptoms when full menstrual flow begins.

Mastodynia therefore should be differentiated from other clinical syndromes of mastalgia, such as duct ectasia, Tietze syndrome, trauma, sclerosing adenosis, intercostal neuritis and cancer ([1, 2, 3, 4, 5]).

Mastodynia has been attributed to a wide variety of agents, with little supportive evidence for any one factor. Cyclical breast pain is believed to result from hormonal imbalance, but no consistent defect in hormone concentration has been identified.

Some Authors have reported deficiency of progesterone in the luteal phase of the menstrual cycle ([6, 7, 8, 9]); others incriminate an excess of oestrogens ([10, 11]). The role of prolactin in the normal, non lactating breast has not been clearly defined. Hyperprolactinemia has been reported in patients with the "premenstrual syndrome" ([12, 13]) and benign breast disease ([14]). Bromocriptine lowers plasma prolactin and a benefit with this agent in mastodynia was reported ([15, 16, 17, 18]) but this finding has not been substantiated by others ([19, 20]).

The increasing importance of mastodynia among breast symptoms for which women seek medical advice and the need of a clear understanding of the theoretical basis of mastodynia therapy prompted us to study the possible relation between plasma prolactin levels and mastodynia.

MATERIAL AND METHODS

Patients were defined as having mastodynia if they fulfilled all of the following:

1) cyclical recurrence of breast bilateral pain during the premenstrual period;

2) complete relief of symptoms when full menstrual flow began;

3) no persistent symptoms, similar to mastodynia, during other periods of the menstrual cycle.

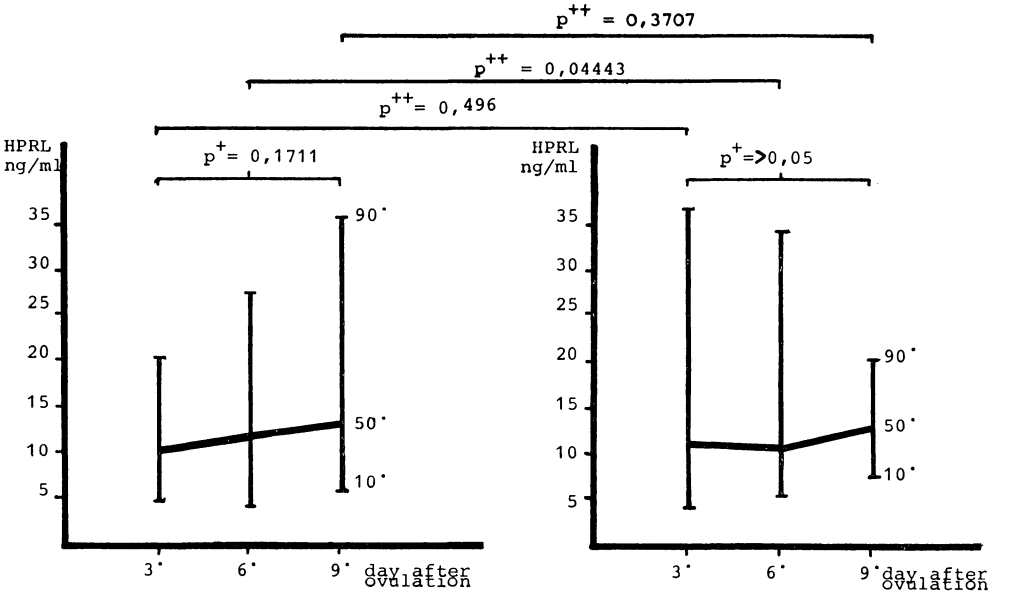

Fig. 1. — Plasma prolactin levels in postovulatory, medioluteal and premenstrual phase, expressed in percentiles, in women affected by moderate or severe mastodynia and in the control group.

+ = Wilcoxon test; ++ = Mann-Whitney test.

Mastodynia was scored as light (non disturbing breast tension) moderate (disturbing breast pain) and severe (incapacitating breast pain). Only patients who complained of moderate or severe mastodynia were considered as "affected".

Among women attending the Breast Center, Institute of Gynecology and Obstetrics, University of Padua, 22 consecutive patients, aged 33.8±8.3 (mean ± SD), who fulfilled the above criteria were studied.

The controls were 43 healthy women, aged 30.9±9.7 (mean ± SD) who attended the Family Planning Clinic for contraceptive advice. A detailed history was taken and all women underwent breast examination and plate thermography in the follicular phase of the cycle; basal body temperature (BBT) charts were kept by all patients for two cycles. A blood sample was taken from the antecubital vein between 8-10 a.m., on postovulatory, medioluteal and premenstrual phase of the cycle, on days 3-6-9 from the thermal rise on BBT charts recordings.

Radioimmunoassay of prolactin was performed by a double antibody technique (Serono Biodata Kit).

Results were compared by the Mann-Whitney test for uncoupled data and the Wilcoxon's signed rank test for paired data ([21]).

RESULTS

Plasma prolactin levels of both groups, in postovulatory, medioluteal and premenstrual phase are shown in figure 1.

No consistent changes were seen during the course of the luteal phase between the postovulatory and premenstrual plasma prolactin levels in the control group ($p = 0.1711$) and in the affected group ($p > 0.05$) as well.

No significant differences were noted between the plasma prolactin levels of the two groups in postovulatory ($p = 0.496$), medioluteal ($p = 0.4443$) and premenstrual ($p = 0.3707$) phases.

Therefore no association was found between moderate and severe mastodynia and variations of plasma prolactin levels.

DISCUSSION

No significant differences in plasma prolactin levels were found in the course of the luteal phase in the group affected by moderate or severe mastodynia and in the control group, in accordance with data previously reported [22, 23, 24, 25]. Moreover, the symptomatic group failed to show the elevated prolactin levels previously reported throughout the cycle or premenstrually by others [12, 13, 14, 26, 27].

These controversial results on possible relations between plasma prolactin levels and moderate or severe mastodynia are likely due to different causes, such as:

– different eligibility criteria adopted in the selection of patients among different studies;

– extreme subjectivity of pain perception and description;

– different methods of results evaluation: as shown in figure 1, the non-Gaussian distribution of plasma prolactin values in either group demands a non-parametric method of data analysis.

Therefore it is difficult to compare results from hardly homogeneous groups, to get uniformity in this controversial field of research. Nevertheless, the results of this study seem at least to suggest that there is no theoretical basis for a standard treatment of mastodynia with drugs that lowers prolactin plasma levels, such as bromocriptine, in women with "normal" prolactin levels.

Different mechanisms of action and/or the placebo effect of bromocriptine should therefore be adequately considered if the therapeutical value of this drug in the treatment of normal-prolactinemic mastodynia is to be assessed.

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