

A Successful Inducement of Prolactin Secretion and an Unsuccessful Attempt to Influence the Luteinizing Hormone Secretion by a Hypnotic Suggestion of Breastfeeding

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Abstract: The pulsatile secretion of prolactin and of luteinizing hormone and its changes in the course of hypnotic suggestion of lactation were studied in eight women with a normal menstrual cycle. The experiment lasted always for 12 hours. In its course blood samples for assessment of serum hormone levels were withdrawn every 10 minutes. After 6 hours introduction into hypnosis took place that lasted for one hour and 40 minutes on the average. During statistical analysis every person was evaluated separately by the method of covariance analysis, where the time was a covariant and the exposure to hypnosis the fix effect. In five women a significant increase of prolactin level occurred subsequent to the beginning of hypnosis. In four of them the increase was present till the end of the experiment. As for luteinizing hormone, a lasting and significant increase of its level was observed in one woman only.

Zusammenfassung: Eine erfolgreiche Induktion von Prolaktinsekretion und ein mißlungener Versuch der Beeinflussung des luteinisierenden Hormons durch hypnotische Suggestion der Stillsituation. Die schlagartige Sekretion von Prolaktin und luteinisierendem Hormon und Änderungen in der Sekretion auf die hypnotische Suggestion der Stillsituation wurden bei acht Frauen mit einem normalen Menstruationszyklus untersucht. Das Experiment ging über 12 Stunden. Während dieser Zeit wurden alle 10 Minuten Blutproben zur Hormonbestimmung entnommen. Nach 6 Stunden fand die eigentliche Hypnoseinduktion statt, die im Durchschnitt über eine Stunde und 40 Minuten ging. Bei der statistischen Auswertung wurde jede Versuchsperson einzeln nach der Methode der Kovarianzanalyse untersucht, wobei die Zeit die Kovariante war und der Hypnosezustand die Konstante. Bei fünf Frauen war ein signifikanter Anstieg des Prolaktinspiegels unmittelbar nach Beginn der Hypnose zu beobachten. Bei vier von ihnen bestand dieser Anstieg noch am Ende des Experiments. Beim luteinisierenden Hormon war ein deutlicher Anstieg nur bei einer Frau zu beobachten.

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Introduction

Even if it has been known for quite a long time that it is possible to influence different physiological functions by hypnotic suggestion, so far no attention has been paid to the endocrine changes that might accompany them.

We attempted to influence the hormonal levels in the feminine organism by hypnotic suggestion of breastfeeding. Puerperium is a physiological condition exhibiting a characteristic hormonal pattern that strikingly differs from the ones in other periods of life. Many women experienced puerperium and lactation in the past, and are acquainted with this hormonal situation. We therefore felt that it is the very puerperium that is most suitable for the first attempt at suggestive influencing of hormonal levels. The breastfeeding was inserted into the suggestion, since it is the most pronounced feature of the postpartal period that has in addition an endocrine response.

Material and Methods

The experiment was performed in eight women aged 25–40 years and exhibiting a normal menstrual cycle. None of them used hormonal contraception. All of them delivered at least once in the past and breastfed their children for at least six weeks. As for the phases of menstrual cycle at the time of the experiment, the progesterone and estradiol levels corresponded in five women to the follicular phase and in three women to the luteal phase of the cycle.

The experiment lasted always for 12 hours. In the course of the first six hours the experimental persons were kept in physical and psychical tranquility. After six hours the introduction into hypnosis took place. It evocation was followed by an age regression to the period of pregnancy and immersion into the physical experiencing of this condition, reexperience of labor and delivery and of the spell of early motherhood focussed especially to lactation. The average duration of the hypnotic state was one hour and forty minutes. The Orne and O'Connell diagnostic scale¹ was used for orientation of the deepness of hypnosis.

An intravenous cannula was introduced and blood samples withdrawn every 10 minutes for the whole 12 hours' period of the experiment. In the samples the serum levels of prolactin (PRL) and luteinizing hormone (LH) were examined. In the first and last sample the serum levels of progesterone, estradiol and follicle-stimulating hormone (FSH) were assessed in addition. The hormonal levels were measured by means of a radioimmunoassay.

Statistic Evaluation

In the course of the analysis every person was evaluated separately. During this evaluation the values of PRL and LH were considered to independent measurements that may represent a linear function (trend) of the time and of the exposure to the pertinent stimulus (hypnosis). The time interval was divided to the spell of hypnosis and to the subsequent period. In coherence with the adopted abstract model the data were evaluated by the method of covariance analysis, where the time represented the covariant and the exposure the fix effect.

Results

The results are shown in the Tables 1 and 2. Table 1 gives characteristic of the series as for hormonal levels FSH, oestradiol and progesterone and hypnability. Table 2 mentions the changes of prolactin and LH levels in individual women.

Table 1. Characteristics of the studies series – hormonal levels and hypnability

person	progesterone (ng/ml)	oestradiol (pg/ml)	FSH (mIU/ml)	hypnotizability
1.	23.0	171.8	3.5	9(5-) points
2.	8.3	178.2	8.1	8(4+) points
3.	2.1	218.1	13.0	8(4+) points
4.	6.6	212.3	2.3	7(4-) points
5.	1.2	173.0	6.7	7(4-) points
6.	0.6	111.0	12.3	8(4+) points
7.	0.4	138.0	1.1	9(5-) points
8.	0.8	131.7	6.6	9(5-) points

Table 2. Average prolactin and luteinizing hormone serum levels before hypnosis, in its course and subsequent to it

	prolactin (ng/ml) relation to hypnosis			p	LH (mIU/ml) relation to hypnosis			p
	before	during	after		before	during	after	
1.	3.83	5.22	5.04	N.S.	1.36	0.75	2.41	<0.001
2.	0.40	5.23	2.30	<0.001	10.57	18.03	10.07	<0.02
3.	5.33	6.10	6.33	<0.001	41.29	41.99	38.02	N.S.
4.	13.56	13.56	18.62	<0.001	17.25	24.67	26.27	N.S.
5.	1.01	0.87	1.32	N.S.	7.12	6.33	5.41	N.S.
6.	5.00	4.69	5.15	N.S.	3.71	3.19	3.99	<0.01
7.	0.25	1.52	1.29	<0.001	3.46	3.18	3.40	N.S.
8.	3.57	11.73	19.69	<0.001	4.65	5.63	5.97	N.S.

If five of the eight studied women a significant PRL increase took place subsequent to the beginning of hypnosis; only in one of these cases a decrease to an average value higher than before exposition took place later on. As for the LH levels, a lasting and significant increase occurred only in one woman.

No "scientific" difference (no significant difference in anatomic, physiologic and psychologic features) was found between the five women who responded to the hypnotic suggestion of the puerperium by a PRL increase, and the three ones where there was no increase of PRL levels. However, it is mentioning worth that exactly the three experimental persons knew by the hypnotherapist prior to the experiment.

Discussion

Papers dealing with the use of hypnosis in the treatment of menstrual disorders appear at least since the beginning the century in the German^{2,3}, English^{4,5}, and Italian⁶ literature. A success is described above all in provocation of menstruation in women with a functional amenorrhea.

A certain attention was called forth in the eighties by the papers dealing with the possibility of hypnotic contraception⁷, where the influence upon the hypothalamo-hypophyseal axis can be supposed as one of the possible mechanisms. However, an attempt at a reliable verification of the enthusiastic reports of the authors of the method ended up with a failure, event if it was possible to note a certain decrease of fertility subsequent to hypnosis⁸.

These clinical experiences, for that matter limited in number and usually insufficiently documented, where, however, not accompanied by an attempt at a laboratory follow-up of concomittant hormonal changes, let alone by an endeavour to influence these levels experimentally.

The suggestion of puerperium and breastfeeding was chosen for this study as a period with a unique psychic situation and specific hormonal changes. We achieved a partial success. The supposed increase in prolactin level occured notwithstanding the steroid background (the result were similar in follicular as well as in luteal phase of menstrual cycle). A decrease of the luteinizing hormone level did not take place. Here it is possible to speculate about a shorter and more direct pathway from the central nervous system and its neurotransmitter in prolactin (it is controlled directly by the hypothalamic dopamine), than in the luteinizing hormone, where there exists moreover the effect of gonadoliberin. Another, perhaps more probable, possibility represents the fact that the prolactin increase in puerperium is an immediate consequence of breastfeeding, whereas the LH decrease is caused by a rather stable hormonal background.

It would be possible to understand the attained results to be a creation of an interesting experimental model. On one hand it offers a possibility of influencing (e.g. pharmacologically) the changes provoked by hypnosis, on the other hand there is the question, whether it would be possible to produce similar changes also by suggestion of other situations. It, however, is necessary to answer beforehand the basic question as follows: are any hormonal changes present during hypnotic state without a specific suggestion? If yes, of what kind are they and how regular are they? If we take into account e.g. the rise of prolactin level during sleep, then it cannot be completely excluded that its changes in the course of hypnotic state were connected with the hypnosis itself and not with the specific suggestion.

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