SERUM GASTRIN LEVELS DURING NORMAL PREGNANCY

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SUMMARY

Serum gastrin levels at various gestational ages are studied by the Authors, for, this protein, has been reported to be produced by the placenta too in correlation with oestrogen levels.

The results of this study, show a substantial increase of gastrin's concentrations during pregnancy, not in relation with calcium levels.

The Authors suggest further studies to identify the origin and mechanisms of this production.

Acknowledgments: we thank Mr. F. Ardito, Mr. A. Palma, Mr. G. Ricci, Mr. M. Santorsola for skilled technical assistance.

This work was supported by a grant from C. N. R.

Has been reported that placenta is able to produce gastrin and other gastrointestinal hormones ([3]).

Various authors found a correlation in rats, between oestrogen levels and the amount of gastrin stored in gastric mucosa ([1]).

There are, however, no reported studies about the above mentioned correlation in pregnant women.

This paper describes our attempt to investigate serum gastrin levels during normal pregnancy.

Meanwhile, serum calcium levels were also measured because of the well known relationship between calcium levels in the blood and gastrin secretion ([2, 7]).

MATERIAL AND METHODS

108 normal women at various stages of pregnancy (28, 24 and 28 subjects at 1st, 2nd and 3rd trimester respectively and 28 control subjects) were studied.

Fasting gastrin serum levels were determined in twice, as reported by Yalow and Berson (1970) ([8]), using the gastrin Kit from CEA (Gif-Yvette, France).

Serum calcium concentration was determined by stomic absorption spectrophotometry.

For the statistical evaluation of the results, student's t-test (for unpaired data) was applied.

RESULTS

Basal serum gastrin levels were found to be 30 pg/ml ± 25 (Mean ± SD) in the control subjects, and 58±26, 67±32 and 72±28 in the 1st, 2nd and 3rd trimester respectively (fig. 1).

Serum gastrin concentrations were significantly higher in the pregnant women than in the control subjects in 1st (<0.05), in 2nd (<0.05) and in 3rd trimester (<0.01) of pregnancy.

Basal serum calcium levels were 10.0 mg/100 ml ± 0.8 (Mean ± SD) in the control subjects and 10.0± 0.9,9.9± 0.6 and 10.2 ± 0.6 in pregnant women at 1st, 2nd, 3rd trimester of pregnancy respectively (fig. 2).

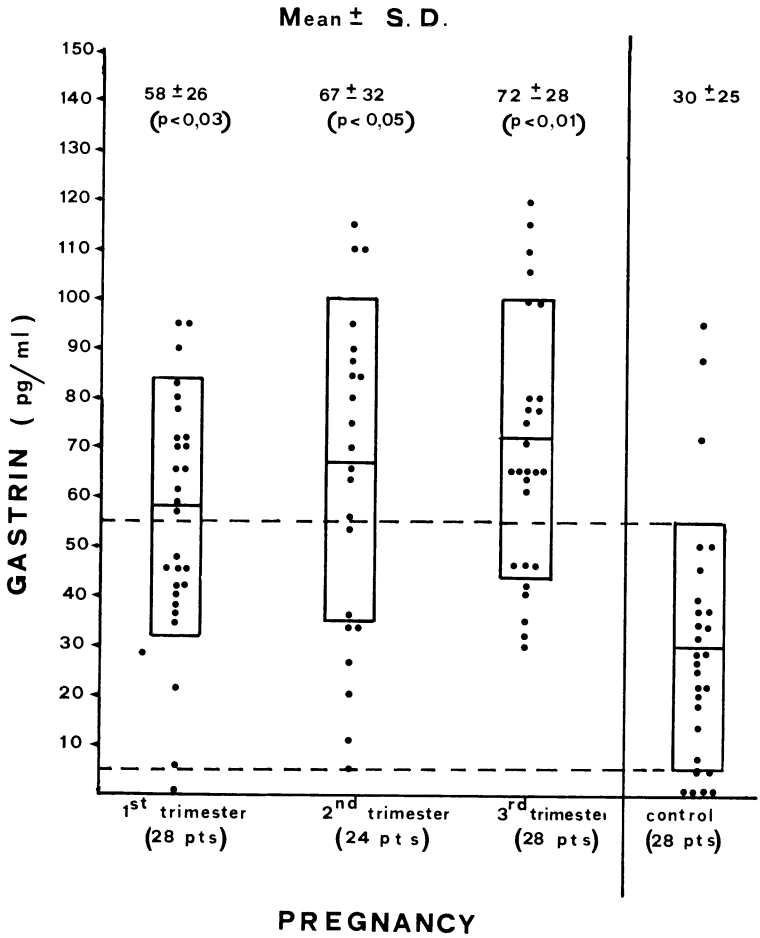

Fig. 1. — Significant elevations in mean serum gastrin concentration were observed in pregnancy (1st, 2nd, and 3rd trimester).

None of the values differs significantly from those of the control subjects.

DISCUSSION

Our results show a substantial increase in fasting serum gastrin concentrations during pregnancy; this increase is not dependent on changes of the serum levels of calcium (fig. 2).

At the moment two reasons could be responsible of this increase: the amount of gastrin in placental tissue reported by Ebeid *et al.* (1976) [3] and the gastrin storage in mammalian gastric antrum demonstred by Amure and Balarinwa (1974) [1] who found the highest amount of gastrin storage in the proestrus stage with the highest levels of oestrogens in blood.

Our observation of the increasing serum gastrin levels during pregnancy and the normal gastrinaemia observed by Ebeid *et al.* [3] women at the delivery time, strongly suggests the relationship between gastrinaemia and oestrogenaemia.

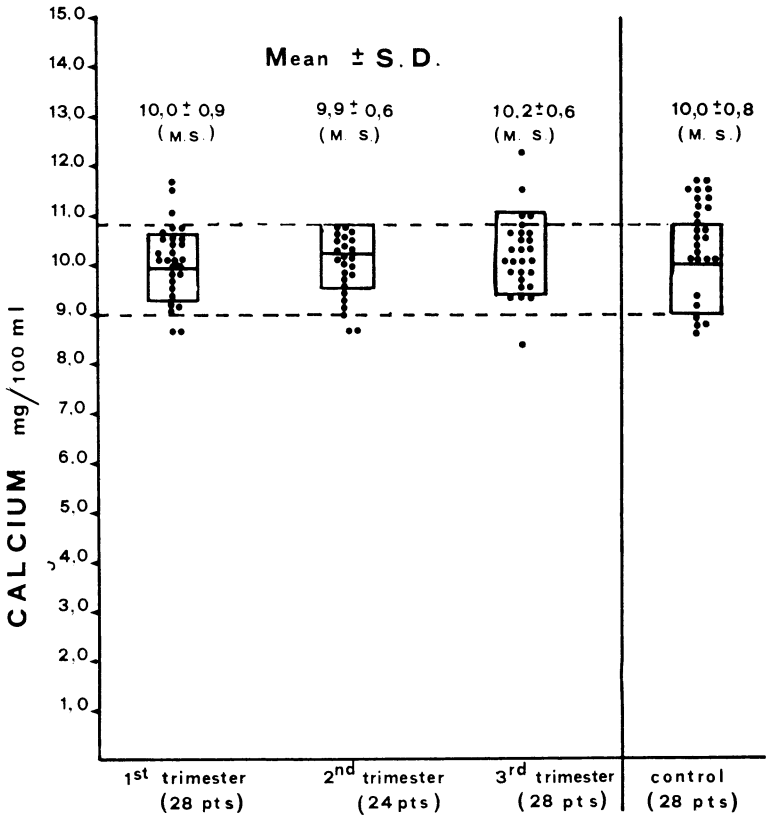

Fig. 2. — Calcium levels observed in Pregnancy (1st, 2nd, 3rd trimester).

Further studies are needed to identify the real source of the increased gastrin levels.

Furthermore, the modest increase of gastrinaemia is not comparable to the more cospicous levels usually found in gastric disorders, according to the clinical observation about the tendency of peptic ulcer to heal during pregnancy ([4, 5, 6]).

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Accepted for publication February 15th 1979.