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Title:
THE PREDICTIVE VALUE OF HYPERPROLACTINEMIA IN DETECTING PROLACTIN-SECRETING TUMORS

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Background:
Hyperprolactinemia is associated with reproductive dysfunction. Pituitary adenomas are benign tumors of the pituitary gland, approximately half of which secrete prolactin at sufficient levels to disrupt ovulation. Serum prolactin assessment is part of the routine evaluation for infertility; however, there is limited data to inform how frequently elevated prolactin is associated with MRI findings of pituitary adenoma in an infertile population.

Objective:
This retrospective cohort study sought to determine the prevalence of pituitary adenoma in an otherwise asymptomatic infertile population with hyperprolactinemia.

Materials and Methods:
Two thousand four hundred twenty-two patients with initial prolactin >25mIU/mL presenting for infertility treatment at a single institution from 2001 to 2017 were included. Patients with elevated prolactin at the time of referral were re-tested prior to initiation of treatment with a dopamine agonist. Hyperprolactinemia was defined as sustained prolactin level >25mIU/mL. Patients with hyperprolactinemia were categorized according to whether an MRI was performed, if a pituitary adenoma was identified, and the size of the adenoma (microadenoma <10mm, macroadenoma >10mm).

Results:
Of the 2,422 patients with an initial prolactin >25mIU/mL, 1,133 were re-tested upon referral. Five hundred thirty-three patients had sustained hyperprolactinemia. Of the patients with hyperprolactinemia, 210 had an MRI performed to evaluate the pituitary. Seventy-two patients had findings suggestive of a prolactin-secreting tumor, macroadenoma (n=2) and microadenoma (n=70). Mean patient age was 36.6yrs for both groups, with and without MRI findings. There was no statistically significant difference in mean prolactin levels between groups (44.1 vs 46.6mIU/mL, p=0.32). Over half of patients with prolactin levels 30-34mIU/mL had pituitary microadenomas on MRI. There was no correlation observed between prolactin level and incidence of adenoma.

Conclusions:
One third of patients with sustained hyperprolactinemia have pituitary prolactin secreting tumors. There is no direct relationship between level of prolactin hormone and prevalence of prolactinoma; MRI findings were present in prolactin levels as low as 25mIU/mL. This is the largest case series to describe the prevalence of elevated prolactin and adenoma in the asymptomatic infertile population. Our findings may be used to confirm a threshold of prolactin >25mIU/mL for performing diagnostic MRI, and to better counsel patients regarding the likelihood of pituitary adenoma when presenting for infertility treatment.

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Table 1:

Prolactin level (mIU/mL)	Number of patients	Normal MRI	Microadenoma	Macroadenoma
25-29	23	18 (78%)	5 (22%)	0 (0%)
30-34	48	23 (48%)	25 (52%)	0 (0%)
35-39	27	18 (66%)	8 (30%)	1 (4%)
40-44	26	17 (65%)	9 (35%)	0 (0%)
45-49	25	18 (72%)	7 (28%)	0 (0%)
50-54	15	12 (80%)	3 (20%)	0 (0%)
55-59	8	7 (88%)	1 (12%)	0 (0%)
60-64	13	8 (62%)	5 (38%)	0 (0%)
65-69	7	5 (71%)	2 (29%)	0 (0%)
>70	18	12 (66%)	5 (28%)	1 (6%)