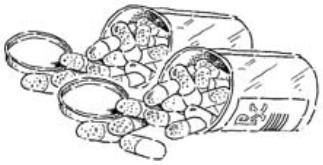

Psychopharmacology **TIDBITS**

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-TB- Hyperprolactinemia and Atypical Antipsychotics. Hyperprolactinemia refers to an increased level of prolactin in the blood, which may be associated with amenorrhea and galactorrhea. Relatively common etiologies include prolactinoma, medication side effects, kidney failure, granulomatous diseases of the pituitary gland, and disorders which interfere with the hypothalamic inhibition of prolactin release. Ectopic (non-pituitary) production of prolactin may also occur.

Common medication causes of hyperprolactinemia are included in the following table.

Psychotropic Medications	Benzodiazepines Buspirone MAOIs, SSRIs, TCAs Butyrophenones (e.g. haloperidol) Phenothiazines (e.g. thorazine) Thioxanthenes (e.g. thiothixene)
Neurologic Medications	Sumatriptan (*Imitrex*) Valproic acid (*Depakote, Depakene*) Dihydroergotamine (DHE 45)
Antihypertensives	Methyldopa (*Aldomet*) Reserpine Verapamil Atenolol
Dopamine antagonists	Metoclopramine (*Reglan*)
Hormonal Preparations	Danazol Estrogen Medroxyprogesterone acetate Oral contraceptives
H2 Blockers	Cimetidine (*Tagamet*) Famotidine *(Pepcid*) Ranitidine (*Zantac*)
Illicit drugs	Amphetamines Marijuana Opiates
Herbal and Food Preparations	Anise Blessed Thistle Fennel Marshmallow Nettle Red Clover Red Raspberry

The principal brain target of traditional antipsychotics (e.g. haloperidol, thioridazine) is the dopamine D2 receptor. By attaching to this receptor, these drugs elevate serum prolactin. Newer atypical antipsychotics are thought to avoid this adverse effect due to their varied receptor binding profiles.

In a recent study conducted by Turrone et al and reported in the *American Journal of Psychiatry* (Jan 2002;159:133-5), it was determined that atypical antipsychotics do elevate prolactin levels in a dose-related fashion. Increases in prolactin levels with atypical antipsychotics are most pronounced in the 1-5 hour period after medication administration and return to baseline values by 12 to 24 hours, thus masking the drug's acute effect on prolactin. Risperidone (*Risperdal*) is the exception. Patients taking this drug experienced ongoing elevations of prolactin similar to traditional antipsychotics.

What was once thought to be a side effect reserved solely for the older, traditional antipsychotics has now been found to be a common occurrence with newer agents. The degree and duration of prolactin elevation separate the newer agents from the older ones. Newer agents other than risperidone (including olanzapine, clozapine, and quetiapine) are associated with a ***transient*** dose-related elevation of prolactin levels. Whether transient elevations are associated with the same degree of complications as continuously elevated prolactin levels is yet to be determined.

A general approach to patients suspected of having hyperprolactinemia includes:

Initial Evaluation: **Confirm hyperprolactinemia**
- Repeat serum prolactin
- Repeat in 6 months if repeat prolactin is normal

Evaluate for a physiologic cause
- Breast stimulation
- Sexual intercourse temporally related to lab test
- Rule-out hypothyroidism

Prolactin 20-50 ng/ml: Identify medication-related cause
- Discontinue medication
- Repeat serum prolactin in 1-2 months

If no obvious medication cause, recheck prolactin in 3 months

Prolactin 50-100ng/ml: Identify medication-related cause
- Discontinue offending medication
- Repeat serum prolactin in 1-2 months

If no obvious medication cause
- Obtain CT or MRI Head
- Imaging normal
  - Amenorrhea or infertility present: treat with bromocriptine
  - Normal menses and fertility: repeat prolactin at 6 month intervals, repeat CT or MRI Head in 1 year
- Imaging abnormal
  - Evaluate pituitary tumor

Prolactin >100 ng/ml: Obtain CT or MRI Head
- Imaging abnormal
  - Evaluate pituitary tumor
- Imaging normal
  - Treat with bromocriptine
  - Repeat serum prolactin every 3 months
  - Repeat CT or MRI Head in 1 year