

# NEWS UPDATES



JULY – AUGUST 2016

## Gastric Antacids (PPI's) Side Effects

Proton-Pump inhibitors are commonly used for inhibiting gastric acid production by blocking the hydrogen-potassium ATPase in the parietal cells of the stomach and are used in treating conditions such as gastric reflux, dyspepsia, gastritis, etc. It has been well documented that long-term use of PPI's contribute to magnesium deficiency and magnesium deficiency disorders such as fractures, cardiovascular disorders, increased risk for developing pneumonia, clostridium difficile infections and more recently chronic kidney disease and dementia risk. Although the use of PPI's should only be used temporarily, about fourteen days, they are frequently taken for months and years by individuals.

*NEJM Journal Watch, 36,3, Feb.1, 2016.*

Comment: Since PPI's may interfere with the absorption of nutrients such as vitamin B12, iron, and calcium as well as cause a loss of magnesium it is important to evaluate the nutritional status for those who have a history of long-term PPI use.

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## Diuretics and Hypercalcemia

Thiazide, a class of diuretics used for blood pressure conditions are known to contribute to hypercalcemia due to increased renal reabsorption of calcium. It has been found that hypercalcemia associated with thiazide use can reveal underlying hyperparathyroidism. The condition is more common in women. Primary hyperparathyroidism is found in a large portion of the population who develop hypercalcemia while taking thiazide.

*Griebeler, ML, et al. Thiazide-associated hypercalcemia. Incidence and association with primary hyperparathyroidism over two decades. J.Clin.Endocrin. Metab. 101, 2016.*

Comment: Hyperparathyroidism (HPTH) is seen in parasympathetic mineral patterns. Since the majority of mineral patterns found in women are parasympathetic it would explain why they would be more susceptible to the hypercalcemic effects of thiazide medications. Thiazide also decreases the clearance of uric acid and can also lead to hypokalemia.

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## Third Leading Cause of Death in the U.S.

Over the past decade it has been estimated that deaths due to medical errors have risen to approximately 250,000 per year. The estimate from over a decade ago was greatly underestimated at 100,000 deaths per year. The current figure of 250,000 deaths per year are based upon hospital patients and may also be grossly underestimated as it does not take into consideration those that die outside of a hospital setting.

<http://response.jwatch.org/t?r=3963&c=783&l=67&ctl=92EE:D6F8D3D6048C5D0352A308D02DDEED23>

## Arsenic in Rice

A study that recently appeared in Pediatrics published findings on the increased arsenic exposures of infants who are given rice cereals. The study included over seven hundred infants analyzing urinary arsenic excretion. Those consuming rice products in their first year had significantly higher arsenic levels than those not consuming rice products. They suggest not providing rice products to infants as a sole source of grains and that consumption should be limited.

*Karagas, MR, et al. Association of rice and rice product consumption with arsenic exposure early in life. JAMA Pediatr. Published online April 25, 2016. doi:10.1001/jamapediatrics.2016.0120.*

Comment: Foods can be a significant source of arsenic and other heavy metals. When elevated heavy metals are found in HTMA results, especially arsenic, a food survey should be initiated and modified accordingly as early and long-term exposure can adversely impact child development.

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## Metformin and Vitamin B12 Deficiency

Metformin, an oral glucose control agent is known to have some side effects. These include lactic acidosis, gastric distress, weakness, etc. It has been suspected that the drug can contribute to a vitamin B12 deficiency. A thirteen year follow-up study has confirmed this relationship. Uncontrolled diabetes is associated with a number of side effects, such as neuropathy, cognitive impairment, and abnormal reflexes. These signs and symptoms are also associated with B12 deficiency. Therefore, individuals taking metformin should be routinely screened for B12 status.

*Allan S. Brett, MD Reviewing Aroda VR et al., J Clin Endocrinol Metab 2016 Apr 101:1754*

An association of this metformin –B12 link has been published in the past by Liu, KW and colleagues. They also explained the mechanism. Apparently uptake of the intestinal cell receptors for the B12-intrinsic factor is calcium dependent and metformin blocks this calcium dependent membrane action. In fact they also found that calcium supplementation could actually reverse the B12 deficiency in those taking metformin. *Liu, KW, et al. Metformin Related B12 deficiency. <http://ageing.oxfordjournals.org/> 2005.*

Comment: It is interesting that calcium supplementation can reverse B12 deficiency. This can be explained by the fact that HTMA studies have shown a relationship of B12 deficiency in sympathetic metabolic types who have corresponding low tissue calcium levels. Therefore, not only may calcium aid in correcting B12 deficiency, but B12 therapy would also aid in calcium retention.

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