



# Experts on Call

Answers to your questions  
from our medical experts

## 1. Developing Rashes From Hot Tubs



### Besides *Pseudomonas*, what other rashes can you get from hot tubs?

Submitted by: [Steve Sullivan, MD](#), Victoria, British Columbia

Hot tub folliculitis would be the most common infection seen with hot tubs contaminated with *Pseudomonas aeruginosa*. Less common cutaneous eruptions caused by hot tubs would include miliaria rubra (sweat retention) from the heat of the hot tub. There are also reports of dermatitis from hot tubs. Bromine used in hot tubs has been reported to cause contact dermatitis. Potassium peroxydisulfate used as “shock” in hot tubs to kill algae has also been

reported to cause a contact dermatitis. Finally, there is a report of *Mycobacterium intermedium* causing a granulomatous dermatitis in an immunosuppressed patient after hot tub exposure. The *Mycobacterium intermedium* was grown from two separate skin biopsy specimens in this patient and the same organism was isolated from the hot tub water.

Answered by: [Dr. Richard Haber](#)



## 2. When to Suspect Andropause



### When should I suspect andropause and when can I make this diagnosis?

Submitted by: [Christine Plante, MD](#), La Sarre, Quebec

Andropause refers to the natural gradual decline in testosterone levels in aging males. This may result in sexual dysfunction, gynecomastia, poor well-being, decreased energy, low muscle and bone mass and increased fat mass. If the testosterone level is low, these men must undergo the same evaluation as younger men with respect to etiology. It is unclear if testosterone replacement in andropause will result in definite improvement in the above clinical manifestations. Studies are controversial and without hard outcomes. If the testosterone level is

unequivocally low with the above symptoms, a trial of therapy may be considered. With this, surveillance of the prostate must occur (benign prostatic hyperplasia, digital rectal exam, PSA) and monitoring of hemoglobin (polycythemia) and for sleep apnea. The target testosterone level in these men should be in the normal range but lower than younger men.

Answered by: [Dr. Ally P. H. Prebtani](#)

## 3. Treating Sore Throats with Antibiotics



### Why do we treat sore throats with antibiotics?

Submitted by: **David Knott, MD**, Mississauga, Ontario

Sore throat, pharyngitis and/or tonsillitis is from a viral cause in 60% of cases and in 40% of patients is related to a bacterial infection. In many cases it can be difficult to distinguish viral from bacterial infections by clinical examination alone. Viral-induced pharyngitis and tonsillitis is characterized by enlargement of neck lymph nodes, headache and signs of red, swollen tonsils and pharynx without any white or yellow patches. Viral infections, mainly caused by adenovirus and rhinovirus are self-limited. Symptom-oriented therapy with analgesia such as ibuprofen or acetaminophen is the mainstay of therapy. Antiseptic mouthwash with chlorhexidine gluconate may provide some benefit and topical treatment with viscous lidocaine solutions may provide further symptomatic relief. For viral sore throats, antibiotics have no effect. Usually, a complete recovery is made within one week.

Bacterial infections are mainly caused by Gram-positive strains, in particular *Staphylococcus aureus*,  $\alpha$ - and  $\beta$ -hemolytic streptococci and *Streptococcus pyogenes*.

In contrast to virally caused infections, white or yellow patches on the back of the throat with red, swollen tonsils are present. Also, there is a trend towards greater generalized symptoms where patients may have a high temperature, headache and aching muscles and joints. Bacterial-caused pharyngitis and tonsillitis needs treatment with antibiotics. First-line therapy with penicillins with penicillinase inhibitors (amoxicillin and clavulanic acid) are given with clindamycin and oral cephalosporins reserved for second-line therapy. Symptomatic attempts should be undertaken to reduce pain, inflammation and thus discomfort during swallowing. Gargling with a solution of warm water, salt and analgesia with ibuprofen and/or acetaminophen can help reduce the pain associated with a sore throat. Chronic disease, defined as more than three bacterial infections per year in three consecutive years, is an indication for consideration for tonsillectomy.

Answered by: **Dr. Jonathan Irish** and **Dr. Boban Erovic**

## 4. Reversing INR Level with Vitamin K



**At what INR level is vitamin K urgently required to quickly reverse the level?**

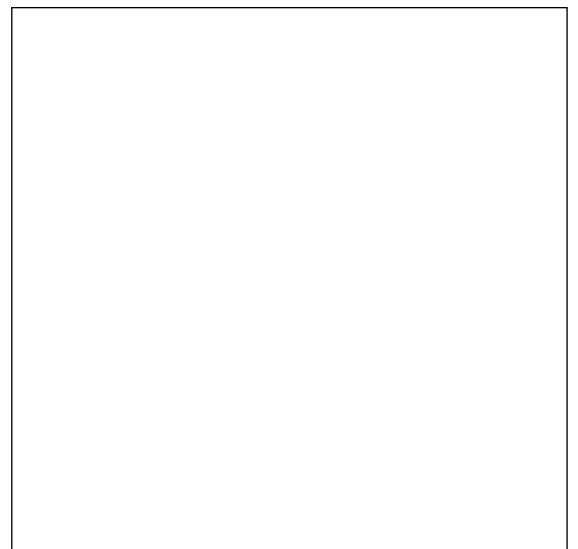
Submitted by: **Stanley Fink, MD**, Etobicoke, Ontario

The clinical indication for warfarin reversal must be determined. If a patient has a severe life-threatening bleed or requires emergent surgery than warfarin reversal for an INR > 1.5 should be completed with vitamin K and fresh frozen plasma or a prothrombin complex concentrate. In stable patients on long-term warfarin, there is guidance from the American College of Chest Physicians. For INR between 5 and 9 they recommend holding warfarin and giving 1 mg to 2.5 mg of vitamin K. For INR  $\geq$  9 they recommend holding warfarin and giving a higher dose of 2.5 mg to

5 mg. There is evidence that in patients with warfarin with an INR > 4 (even > 10) that holding warfarin alone for one to two doses and monitoring more frequently is sufficient.

It is important to remember that if vitamin K is given, its effect will typically occur within six to 12 hours and that it can potentially lead to complete reversal of warfarin. Hence, if complete reversal is not desired, do not give vitamin K.

Answered by: **Dr. Cyrus Hsia** and **Dr. Leonard Minuk**



## 5. Prunes as Natural Laxatives

### ? How do prunes give you the runs?

Submitted by: **Steve Sullivan, MD**, Victoria, British Columbia

Prunes have long been considered the fruit of choice in the battle against constipation. Although its laxative effect is well known, its mode of action on the bowels remains elusive to patients and physicians alike. Many physicians suggest a high fiber content as the main mechanism. The review by Stacewicz-Sapuntzakis, *et al* estimates that 100 g of dried prunes contains up to 16 g of total dietary fiber, which would constitute 64% of the daily recommended value.<sup>1,2</sup> Tinker, *et al* found that 100 g of prunes taken daily for four weeks caused stools to be bulkier and heavier.<sup>3</sup> However, the laxative effect of prunes also extends to its juice derivative, despite having very little dietary fiber (0.01 g to 1 g per 100 mL of prune juice).<sup>5</sup> Thus, fiber cannot be the single active agent responsible for encouraging bowel movements.

In addition to fiber, dried prunes and prune juice contain a sugar alcohol known as sorbitol. Ellis, *et al* determined that 16 g to 25 g of sorbitol can cause “very soft or watery stools.”<sup>6</sup> Studies estimate that there are 14.7 g of sorbitol in 100 g of dried prunes and 6.1 g in

100 mL of prune juice.<sup>7</sup> Sorbitol is absorbed more slowly than other sugars, prolonging fermentation time and resulting in osmotic diarrhea.<sup>8,9</sup>

Phenolic compounds comprise another aspect of prunes that promote bowel motility. These amount up to 180 mg per 100 g of prunes and are structurally, physiologically or chemically similar to other laxatives, including phenolphthalein (previously a component in Ex-Lax®).<sup>10-13</sup> These compounds alter the electrolyte balance in the intestinal tract, impair glucose absorption and stimulate intestinal contractions.<sup>11-14</sup>

With this combination of bulk-forming, osmotic and stimulating agents, prunes prove to be one of the best natural laxatives available to date.

For references, please contact [diagnosis@sta.ca](mailto:diagnosis@sta.ca)

Answered by: **Dr. Robert J. Bailey** and **Dr. Sarah Lai**

## 6. OTC Anti-Allergy vs. Prescription Medications



### How effective are OTC anti-allergy meds (eye drops) vs. prescriptive meds?

Submitted by: **Simon Ng, MD**, Vancouver, British Columbia

Firstly, artificial tears are effective at diluting and washing away allergen (preservative free is preferable). Any medication put in the eye will probably give some degree of immediate relief of symptoms, especially when given cold (kept in the fridge). Topical decongestants reduce chemosis and hyperemia by an  $\alpha$ -adrenergic mechanism resulting in vasoconstriction. They can be of further help in allergic patients when combined with a topical antihistamine (e.g., 0.3% pheniramine maleate, 0.025% naphazoline hydrochloride). However, care must be taken to avoid overuse, as side-effects may include rebound redness and an increase in conjunctivitis due to development of a contact sensitivity.<sup>1</sup> They are contraindicated in narrow angle glaucoma. Topical OTC mast cell stabilizing agent sodium cromoglycate likely has limited clinical effects beyond the lubrication/washing effect. However, a topical OTC antihistamine such as levocabastine has been shown to be of similar efficacy as OTC oral antihistamines. Prescription therapy tends to be more effective in general and deals with the inflammatory component of the underlying condition. Topical antihistamines which are prescription include emedastine 0.05% four

times a day dosing; works immediately to reduce itch, redness, chemosis and tearing. More recent prescription mast cell stabilizing agents include olopatadine and ketotifen eye drops which may also inhibit eosinophilic accumulation and may be used on a twice a day basis. Notably, recent data has also shown that improving the allergic rhinitis component by way of intranasal corticosteroids also helps alleviate ocular symptoms, likely by way of reducing stimulation of the naso-ocular reflex. Topical steroids are particularly helpful in severe cases of vernal keratoconjunctivitis, atopic keratoconjunctivitis, giant papillary conjunctivitis and allergic contact dermatitis, but risk include increasing intraocular pressure, cataract formation and herpes keratitis and as such, should be given under the surveillance of an ophthalmologist.

#### Reference

1. Soparkar CN, Wilhelmus KR, Koch DD, et al: Acute And Chronic Conjunctivitis Due To Over-The-Counter Ophthalmic Decongestants. Arch Ophthalmol 1997; 115(1):34-8.

Answered by: **Dr. Tom Gerstner**

## 7. Unilateral Migraines



### What to think when the migraine is always on the same side?

Submitted by: **Steve Sullivan, MD**, Victoria, British Columbia

Migraine is usually a unilateral throbbing headache accompanied with nausea, photophobia, sonophobia or sensitivity to smells. In about 30% to 40% of cases, the pain may be bilateral or switch sides. However, certain vascular anomalies or brain mass lesions may cause unilateral headaches. If suspected, such conditions may be assessed by brain imaging. The brain imaging such as CT scan/MRI and magnetic resonance angiography is indicated with decreased level of alertness, onset of headaches with exertion, sexual activity, coughing or sneezing, nuchal rigidity, new onset of headaches in individuals > 50-years-old, worst

headache ever experienced and headache not fitting otherwise defined pattern. However, the use of brain imaging is not indicated if headaches are of similar nature as previous and accompanied with other migrainous features, normal vital signs and alertness, supple neck, no neurological signs and improvement of headaches without any analgesics or abortive treatments.

Answered by: **Dr. Abdul Qayyum Rana**

## 8. Obstructive Sleep Apnea and Bradycardia



### Is there any association between obstructive sleep apnea (OSA) and bradycardia? I have two patients with OSA who have episodic bradycardia with heart rates < 30 bpm.

Submitted by: **Cathy Mastrogiacomo, MD**, Toronto, Ontario

OSA may result in difficult to treat hypertension and nocturnal arrhythmias including atrial fibrillation, ventricular ectopy (premature ventricular contractions, ventricular tachycardia) and most commonly, bradyarrhythmias. Bradyarrhythmias occur in about 50% of patients with OSA and are secondary to increased vagal tone. Sinus bradycardia, heart block and ventricular asystole are common during periods of apnea with heart rates as slow as 10 bpm and ventricular pauses of up

to 10 seconds. These bradyarrhythmias resolve with treatment of OSA (continuous positive airway pressure, uvuloplasty, tracheostomy).

#### Resource

1. Simantirakis EN, Schiza SI, Marketou ME, et al: Severe Bradyarrhythmias In Patients With Sleep Apnoea: The Effect Of Continuous Positive Airway Pressure Treatment: A Long-Term Evaluation Using An Insertable Loop Recorder. *Eur Heart J* 2004; 25(12):1070-6.

Answered by: **Dr. Bibiana Cujec**

# 9. Women with Male Pattern Baldness



## Can finasteride be used in women with male pattern baldness?

Submitted by: [Danaze Chambers, MD](#), Banff, Alberta

Female pattern hair loss, or androgenetic alopecia, is a very common type of non-scarring, non-inflammatory alopecia. There is often a strong family history of hair loss and it becomes more common with age. Whereas in males there are typical patterns (temporal areas and vertex), in females the alopecia tends to be more diffuse. There may be coexistent telogen effluvium or alopecia areata. Female patients with extensive hair loss or early onset disease should be screened for pathologic androgen excess, especially of adrenal and ovarian origin.

It is thought to be due to an increased sensitivity to circulating androgens. Testosterone is converted to a much more active form, dihydrotestosterone by 5- $\alpha$  reductase types I and II. 5- $\alpha$  reductase is found in the scalp, beard and chest hair follicles, as well as sebaceous glands, liver and prostate.

A good initial option for most patients with androgenetic alopecia is topical minoxidil 5% scalp solution applied twice daily. It was initially an oral antihypertensive medication that was found to promote hair growth. Patients should be advised it will take at least three months before any effects are seen as it shifts hair from telogen to anagen.

In female patients, antiandrogen therapies, including OCs, are often used off-label in addition to minoxidil. Female patients of childbearing ages are advised that they must not become pregnant while on antiandrogen therapy. As with topical minoxidil, therapy must be continued to allow for regrowth. Hair loss will likely resume if treatments are stopped.

Antiandrogens that block androgen receptors include spironolactone and progestins found in OCs, including cyproterone acetate. These are often quite helpful for women with androgenetic alopecia.

5- $\alpha$  reductase inhibitors, such as finasteride 1 mg p.o. q.d., have been shown to be quite effective for males with androgenetic alopecia. However, convincing studies in women are lacking. Thus, finasteride may be a less effective off-label option for women with female pattern hair loss.

Answered by: [Dr. Charles Lynde](#) and [Dr. John Kraft](#)

## 10. Acute Typhoid Fever



### What is the ideal treatment regimen for treating acute typhoid fever?

Submitted by: **John Sigismund, MD**, Richmond, British Columbia

Ideally, any traveller to an area endemic with *Salmonella typhi*, the etiologic agent of typhoid fever, should receive one of the two typhoid vaccines (oral, live attenuated and Vi capsular polysaccharide vaccine, both of which protect 50% to 80% of recipients) prior to travel. If typhoid fever develops, however, empiric treatment in most parts of the world consists of a fluoroquinolone such as ciprofloxacin 500 mg p.o. b.i.d. for approximately 10 days, or ceftriaxone 2 gm IV every 24 hours for 14 days. It is important to note that resistance to fluoroquinolones is highest

in the Indian subcontinent. Even with appropriate antimicrobial therapy, persons with typhoid fever may require three to five days to defervesce. Additional information about typhoid fever may be found at the Centre for Disease Control and Prevention Travelers' Health – Yellow Book: <http://wwwnc.cdc.gov/travel/yellowbook/2010/chapter-2/typhoid-paratyphoid-fever.aspx>.

Answered by: **Dr. John Embil**

## 11. Common Causes of Low Platelets



### What are the most common causes of low platelets in an otherwise healthy adult?

Submitted by: **Stan Fink, MD**, Etobicoke, Ontario

There are several causes of a low platelet count or thrombocytopenia. By definition, thrombocytopenia is present when a platelet count falls below the reference range that typically ranges from 150 to 450 x 10<sup>9</sup>/L for most laboratories. This represents two standard deviations from the population mean platelet count and as such 2.5% of the population will have platelet counts less than this. The presence of platelet clumping should be ruled out as this would suggest pseudothrombocytopenia, a phenomenon that occurs in approximately 0.1% of the population when peripheral blood is collected

using standard ethylenediaminetetraacetic acid as the anticoagulant. True causes of thrombocytopenia can then be classified into problems with marrow production, increased peripheral destruction, or sequestration. Common causes may differ slightly depending on the age of the patient. Typically, drugs and immune thrombocytopenia purpura are the main causes. In elderly patients, > 50- to 60-years-old, myelodysplastic syndromes should also be considered.

Answered by: **Dr. Cyrus Hsia and Dr. Leonard Minuk**



## 12. Low Sexual Desire in Post-Menopausal Women



**What lab tests should one order in a post-menopausal woman with low sexual desire?**

Submitted by: **Monica Yuzak, MD**, Vancouver, British Columbia

Decreased sexual desire is common in post-menopausal women. Women in their 40's have approximately half the circulating testosterone of a woman in their 20's. However, mean testosterone levels do not vary in the years before and after menopause (45- to 55-years-old).<sup>1</sup> Two large, rigorously controlled studies did not find a link between low sexual function and testosterone levels, and low testosterone levels were not associated with declines in sexual function during the menopausal transition.<sup>2,3</sup> Therefore, lab tests do not help in the diagnosis. Symptoms are diagnostic; other disorders (depression, thyroid disease, hyperprolactinemia) or drugs (most antidepressants, phenothiazine, central acting  $\beta$ -blockers) that can alter sexual function should be excluded. Marital dysfunction and/or erectile dysfunction and/or dyspareunia secondary to atrophic vaginitis are all common causes of hypoactive sexual desire disorder. If a woman decides to

attempt androgen therapy (not always effective) then baseline free testosterone should be ordered and monitored (every three months for the first six months) to avoid super physiologic levels. In addition, the lipid profile should be monitored simultaneously. Androgen therapy should not be prescribed without first attempting adequate estrogen replacement therapy. If no increase in sexual desire has occurred after three months of adequate androgen therapy then therapy should be discontinued.

#### References

1. Davison SL, Bell R, Donath S, et al: Androgen Levels in Adult Females: Changes with Age, Menopause, and Oophorectomy. *J Clin Endocrinol Metab* 2005; 90(7):3847-53.
2. Davis SR, Davison SL, Donath S, et al: Circulating Androgen Levels and Self-reported Sexual Function in Women. *JAMA* 2005; 294(1):91-6.
3. Spetz AC, Fredriksson MG, Lidfeldt J, et al: Prevalence Of Symptoms In Relation To Androgen Concentrations In Women Using Estrogen Plus Progestogen And Women Using Estrogen Alone. *Menopause* 2009; 16(1):149-55.

Answered by: **Dr. Victoria Davis**

## 13. Avoiding Smoking Prior to Fasting Lipids



**How important is it to avoid smoking prior to fasting lipids? Many of my patients are unable to go with no coffee and smoking prior to their lipid profile.**

Submitted by: **Robin Lamoureux MD**, Edmonton, Alberta

Coffee and smoking can affect BP readings but have no significant effect on the fasting lipid profile. Coffee should be black without sugar.

Answered by: **Dr. Vincent Woo**

# 14. Physiology of the Pain Associated with IBS




## What is the physiology of the pain associated with irritable bowel syndrome (IBS)?

Submitted by: Pam McDermott, MD, Huntsville, Ontario

The physiology of the pain associated with IBS is multifactorial in nature. Many studies have reported abnormal GI motility, visceral hypersensitivity and microscopic inflammation in patients with IBS. Studies of small bowel and colonic motility in IBS have been plagued by inconsistent results and the wide range of normal findings. No predominant pattern of motor activity has emerged as a marker for IBS. Pain perception in the GI tract is caused by stimulation chemo- and mechanoreceptors. These receptors transmit signals via afferent neural pathways to the dorsal horn of the spinal cord and ultimately to the brain. Several studies have focused on visceral afferent hypersensitization in the gut as a possible etiology of IBS. For example, rectal distension in patients with IBS increases cerebral cortical activity more than it controls and this distension is less well tolerated.<sup>1</sup> This possible increase in sensitivity appears to be specific for visceral afferents since patients with IBS have normal or even increased thresholds to somatic pain.<sup>2</sup>

Microscopic inflammation has been demonstrated in immunohistologic studies of the bowel in patients with IBS, especially those with diarrhea-predominant or post-infection

types. For example, a recent study of 10 patients with severe IBS demonstrated an increased lymphocytic infiltration into the myenteric plexus in nine of the biopsies.<sup>3</sup> Another study has demonstrated the presence of activated mast cells in the jejunal biopsies of IBS patients.<sup>4</sup> However, these results have been found in only a small number of patients with a diarrhea-predominant subtype of IBS and may not represent the underlying mechanism of all patients with IBS. Due to the complex nature of IBS and its different subtypes, it remains a challenging entity to effectively treat, largely due to the underlying pathophysiology of the disease process. 

### References

1. Lawal A, Kern M, Sidhu H, et al: Novel Evidence For Hypersensitivity Of Visceral Sensory Neural Circuitry In Irritable Bowel Syndrome Patients. *Gastroenterology* 2006; 130(1):26-33.
2. Cook IJ, van Eeden A, Collins SM: Patients With Irritable Bowel Syndrome Have Greater Pain Tolerance Than Normal Subjects. *Gastroenterology* 1987; 93(4):727-33.
3. Törnblom H, Lindberg G, Nyberg B, et al: Full-Thickness Biopsy Of The Jejunum Reveals Inflammation And Enteric Neuropathy In Irritable Bowel Syndrome. *Gastroenterology* 2002; 123(6):1972-9.
4. Guilarte M, Santos J, de Torres I, et al: Diarrhoea-Predominant IBS Patients Show Mast Cell Activation And Hyperplasia In The Jejunum. *Gut* 2007; 56(2):203-9.

Answered by: **Dr. Robert J. Bailey** and **Dr. Richard Sultanian**