Current Guidelines for Tonsillectomy

1. What are the current guidelines for tonsillectomy?

Question submitted by:
Dr. Dominic Eustace
Delta, British Columbia

The answer could fill a whole chapter! In summary, the indications for tonsillectomy can be divided into three main categories: obstructive, infectious and neoplastic. The different indications are listed in each category.

A) The obstructive indications include:

- Sleep-related disordered breathing, which is the most common reason for tonsillectomy. These patients present with varying degrees of obstructive sleep and awake breathing disturbances. The clinical picture may include a wide range of disorders, from full-blown obstructive sleep apnea syndrome to a more subtle form, such as the upper-airway resistance syndrome
- Failure to thrive
- Cor pulmonale disease
- Dysphagia
- Speech abnormalities
- Orofacial/dental abnormalities

B) The infectious indications include:

- Recurrent/chronic tonsillitis, which comprises seven episodes in the preceding 12 months, five in each year for 24 months, or three per year for three years; the clinical severity of the episodes should be taken into account, and this may result in as little as one less episode of sore throat with fever per year
- Tonsillitis with:
  - Abscessed cervical lymph nodes
  - Acute airway obstruction
  - Cardiac valve disease
- Persistent tonsillitis with:
  - Persistent sore throat
  - Tender cervical lymph nodes
  - Halitosis
- Tonsillolithiasis
- Streptococcal carrier unresponsive to therapy
- Peritonsillar abscess (recurrent or with recurrent tonsillitis)

C) Suspected neoplasia: benign or malignant

Other indications or guidelines employ a classification system that identifies symptoms as absolute or relative. However, I find that the aforementioned classification scheme is more inclusive.

Answered by:
Dr. Ted Tewfik

A Breast Lump Finding in a Teen vs. One in an Adult

2.

How is a breast lump in a teenager different from one found in an older patient?

Question submitted by:
Dr. D'Souza
Toronto, Ontario

The most significant difference between a breast lump in a teenager versus one in an older patient is the difference in cancer risk. The risk of primary breast cancer in a teenager is extremely small, approximately one-in-a-million. The most common malignant mass in the breast of an adolescent male or female is a metastatic lesion, such as rhabdomyosarcoma, which is also rare. The majority of adolescent breast masses are benign and tend to wane with time. Adolescents are more likely to have lesions related to hormonal effects associated with puberty, which can lead to breast asymmetry in females and gynecomastia in males. Female adolescents can also suffer from the more common afflictions seen in older women, such as fibroadenomas, fibrocystic breast disease, and mammary duct ectasia. Biopsy and excision, however, is approached more judiciously in adolescents, given the risks of scarring and the life-long impact on future screening interpretation.

A physician should also be vigilant and explore possible abscesses in the breast or nipple area following piercing in an adolescent who presents in septic shock. In the past, pelvic inflammatory disease would be key in the differential, but a number of cases of death have been reported following such breast infections.

Answered by:
Dr. Cathy Popadiuk

Symptoms and Treatment of Pleural Effusion

3.

Please discuss the symptoms and treatment of pleural effusion.

Question submitted by:
Dr. Louis Kennedy
Kingston, Ontario

Pleural effusions develop in such a wide variety of circumstances that it is difficult to make general statements about symptoms and treatment. With large- and moderate-sized effusions, the patient will often complain of shortness of breath. When effusions are associated with heart failure, malignant disease, and systemic illnesses, the symptoms will be dominated by and determined by the underlying disease. Pleuritic chest pain, a stabbing pain that is aggravated by a deep breath or by coughing, is a characteristic symptom of pleural disease. Pleuritic pain will generally be more prominent when there is pleural inflammation with a small amount of fluid, and it is notable in pleural infections, uremia, and malignant disease.

The cause of a pleural effusion will often be obvious because of the features of the associated disease. When the cause is not obvious, the diagnosis will generally require the sampling and examination of the pleural fluid and, on occasion, a biopsy of the pleura.

Pleural empyema, pus in the pleural space, requires prompt diagnosis and drainage. It should be suspected in any patient who is being treated for pneumonia and who is making poor progress. Failure to diagnose and treat an empyema can lead to a wide range of complications.

Answered by:
Dr. Robert Cowie

Can an Infant Be Allergic to Its Mother's Milk?

4.

Can an infant be allergic to its mother's milk?

Question submitted by:
Dr. Peter Mucalov
Queensville, Ontario

Strictly speaking, a human baby should not be allergic to human milk. However, there are a number of breastfed infants who may react adversely to some of the dietary proteins ingested by their mothers that are, in turn, secreted in breast milk. Most of these infants will present at two- to eight-weeks-of-age with blood-tinged stools. This condition is known as food protein-induced proctitis or proctocolitis. It develops when orally ingested protein causes inflammation in the rectum and distal sigmoid colon.

At least half of all infants with food protein-induced proctitis are breastfed. They are usually healthy and thriving but present with blood in their stool. The treatment of this condition involves the sequential elimination of foods from the mother's diet. Cow's milk is the agent responsible for the bloody stools in 65% of cases. Mothers need to eliminate all sources of cow's milk protein from their diet including cheese, yogurt, and butter. Other agents that may cause this condition are egg, corn, and soy.

An elimination diet by the mother should be tried for two to three weeks to see if the problem will resolve. However, if there is no resolution of the bloody stools in this time frame, then the mother's diet is probably not the cause of the symptoms, so the diet should be abandoned in favour of better maternal nutrition.

Answered by:
Dr. Krista Helleman

Hard to Treat Head Lice

5.

Could you comment on hard to treat head lice?

Question submitted by:
Dr. Larry Bobyn
Kelowna, British Columbia

There is no question that treating head lice can be frustrating. The standard pesticides, such as permethrin shampoos, permethrin 1% rinse, and lindane, usually work quite well. However, clearing nits can involve repeat combing with a nit comb. You should ensure that all infected individuals in the family are inspected and treated. As well, it is important to carefully clean hair brushes, hats, and pillow cases. The use of oral agents, such as trimethoprim and sulfamethoxazole and ivermectin, is currently off-label, but their use is being investigated. There is heightened interest in lice-suffocating treatments, such as dimethicone containing moisturizers, that are hardened on the scalp with a hair dryer and left on for eight hours.

Answered by:
Dr. Scott Murray

Decolonizing a Patient Diagnosed with MRSA

6.

If a person is diagnosed with mild MRSA, is it worth trying to decolonize the patient with nasal mupirocin chlordane washes?

Question submitted by:
Dr. Paul Walden
Vancouver, British Columbia

There is no good answer to this question nor are there any specific recommendations on decolonization for any group. In addition, there is no standard recommendation for how to decolonize individuals. Assuming we are talking about individuals in the community, and not hospitalized individuals where infection control issues are a factor, there are a few situations where decolonization might be considered. The first would be in the situation where an individual is having recurrent staphylococcal skin infections — whether with MRSA, or sensitive strains. The second would be in an outbreak situation in a relatively closed population, where there is at least a theoretical possibility of identifying carriers who could be decolonized in an attempt to stop or limit the outbreak. In either case, most of the commonly used regimens use mupirocin intranasally, as well as at any body location where colonization has been found or is likely, such as non-intact skin. In many cases, an antiseptic soap is also used. The most common soaps contain chlorhexidine or hexachlorophene. In some aggressive protocols, systemic antibiotics are used as well, based on the in vitro susceptibility of the isolate. There is a feeling among many specialists that this procedure can be successful in such cases. However, there is a striking lack of controlled data, and what data we have is somewhat conflicting. It is clear that younger, healthier individuals without skin lesions or dermatitis tend to be fairly easy to decolonize, and, in fact, they also tend to decolonize spontaneously over time.

Answered by:
Dr. Michael Libman

Oral Iron Preparations

7.

Of all the oral iron preparations available, which is the most tolerable, most easily absorbed, and has the least side effects?

Question submitted by:
Dr. Roshan Dheda
Bradford, Ontario

There are numerous oral iron preparations available for the management of patients with iron deficiency. Ferrous iron salts have been used extensively and are soluble in the duodenum and jejunum, the main intestinal sites of iron absorption. The common ferrous iron salts are ferrous gluconate, ferrous sulfate, and ferrous fumarate. Although elemental iron varies depending on the manufacturer, ferrous gluconate, ferrous sulfate, and ferrous fumarate typically contain approximately 30 to 36 mg, 60 to 66 mg, and 90 to 100 mg of elemental iron, respectively. Furthermore, the amount of elemental iron in each preparation is usually proportional to the degree and amount of side effects. There is little difference in the relative absorption of these preparations. Other oral iron supplements include polysaccharide iron complexes consisting of ferric iron complexed to hydrolyzed starch that usually contains 150 mg of elemental iron in a 150 mg tablet. The relative absorption and tolerability of this formulation compared to ferrous iron salts have not been definitely assessed. Oral heme iron products are also available and believed to be better absorbed and tolerated than iron salts. Unfortunately, data is limited and the cost is significantly more expensive.

Answered by:
Dr. Cyrus Hsia and
Dr. Kang Howson-Jan

Babinski Reflex and Investigating Lumbosciatalgia

8.

At what level does spinal stenosis cause a Babinski reflex, and how to investigate lumbosciatalgia with unilateral Babinski reflex?

Question submitted by:
Dr. Nicolas Boudreault
Lac-Etchemin, Québec

A Babinski reflex is the dorsiflexion of the great toe, with or without fanning of the other toes and withdrawal of the leg, on plantar stimulation. The Babinski response results from damage to the pyramidal tract, in which there is an exaggeration of the clinically normal flexor withdrawal reflex when stimuli reach noxious levels. Thus, damage at any level along the pyramidal tract can cause a Babinski reflex.

Lumbosciatalgia is not a commonly used term in Western medicine; rather, the term lumbar or sacral radiculopathy is used to denote the signs and symptoms of sacral or lumbar nerve root irritation or damage. A positive Babinski reflex would not be expected in this scenario, as a nerve root or distal lesion is considered a lower motor neuron lesion, while a positive Babinski reflex is considered an upper motor neuron finding (involving the pyramidal tracts).

Answered by:
Dr. Sarah A. Morrow

Which Group of Men/Women Should Take ASA

9.

Many men take ASA. Which group of women should be advised to take ASA? Is it true that the value is significantly less in women under 65 and why?

Question submitted by:
Dr. Peter Seviour
St John's, Newfoundland

This is a very important question, but I would like to extend my answer to address the question for both men and women. Previous research shows that for men and women who have suffered a prior ischemic event, such as myocardial infarction, acute coronary insufficiency, or stroke, the benefits of ASA therapy almost always outweigh the risks. The major risk, of course, is gastrointestinal bleeding.

New recommendations, published recently in the annals of internal medicine, reviewed studies published in the last decade that looked at the benefits of ASA in men and women as well as the risk of bleeding. Men younger than 45, and women younger than 55, who have not had a prior ischemic event and are not at very high risk of such an event, should not take ASA routinely for the prevention of heart attack or stroke. In this group, the risk of events is very low and is outweighed by the risk of bleeding. For men and women aged 80 and over, there was not enough evidence to recommend for or against the use of ASA.

The US government advisory task force conducting the review concluded that the benefits outweigh the risks for men age 45 to 79 who are at a high risk of having a heart attack in the next 10 years.[1] For women, the benefits don't tip in ASA's favour until age 55 and are limited to those at high risk of having a stroke in the next decade. Regardless of gender, the therapy should be limited to those who also have a low risk of gastrointestinal bleeding.

The reason ASA appears to be less effective in preventing myocardial ischemic events in women is open to speculation. It most likely relates to the relatively lower risk of such events in this age group in women. Regardless, the decision to recommend ASA therapy for women in this intermediate age group must depend upon a careful assessment of their medium- and long-term risk of ischemic events. I would be especially concerned for women with the triad of hypertension, obesity, and diabetes mellitus.

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1. U.S. Preventive Services Task Force. Aspirin for the Prevention of Cardiovascular Disease: Clinical Summary. AHRQ Publication No.09-05129-EF-3, March 2009.

Answered by:
Dr. Wayne Warnica

10. Estrogen-containing Contraception and Migraine

What is the current recommendation regarding the use of estrogen containing contraception in women with migraine headache?

Question submitted by:
Dr. Sara Rudge
Burlington, Ontario

Estrogen-containing contraception must be approached with care in women with migraine headaches. A thorough review regarding the quality and timing of the migraines, exacerbating and ameliorating factors, and other medical conditions should be explored. Estrogen withdrawal preceding menstruation can bring on migraine headaches in some women. In this case, an estrogen-containing contraceptive taken in a continuous fashion may be an option. An estrogen-containing contraceptive in a woman with migraine headaches associated with sensory (visual, olfactory, or otherwise) or focal neurological effects is contraindicated given the increased risk of ischemic stroke. In women with migraines not exhibiting auras, estrogen-containing contraceptives are not contraindicated.

Answered by:
Dr. Cathy Popadiuk

11. Why the Incidence of Shingles Seems to Be Rising

Why does the incidence of shingles seem to be rising?

Question submitted by:
Dr. Jane Purvis
Peterborough, Ontario

Shingles is not a reportable disease, and clear evidence that the incidence is on the rise has not been published. Nevertheless, many clinicians have noticed an increase in their practices. There are several possible reasons for such a phenomenon. One is simply the aging of the general population. Another would be the increasing use of immunosuppressive agents to treat a large variety of conditions, mostly those considered to be autoimmune. The increasing number of indications for "biologics," such as anti-TNF agents, may be particularly implicated, as these agents target the cellular branch of the immune system responsible for keeping the varicella zoster virus (VZV) in check. It is also likely that intermittent exposure to individuals with active chickenpox may serve to periodically boost immunity and help control latent VZV. With the near universal vaccination of children against chickenpox, such exposure has become increasingly rare. Thus, it is possible that the vaccination of children against chickenpox has increased the incidence of shingles. This, in turn, might increase the benefit of vaccinating older adults against shingles.

Answered by:
Dr. Michael Libman

Treating Superficial BSC and SCC with 5-Aminolevulinic Acid

12.

How effective is 5-aminolevulinic acid photodynamic therapy in treating superficial basal cell carcinoma and superficial squamous cell carcinoma?

Question submitted by:
Dr. Diane MacGillis
Kingston, Ontario

Photodynamic therapy can be very effective for superficial processes, such as actinic keratosis, superficial in situ squamous cell cancer (Bowen's disease), and superficial basal cell cancer. Reviews have shown short-term complete response rates ranging from 59 to 92% and recurrence rates ranging from 5 to 44%. However, some of these include deeper nodular lesions, which do not typically respond due to the lack of penetration of the photosensitizing agent. For superficial lesions, cure rates of over 90% can be achieved — similar to properly applied cryotherapy and surgery. While this modality tends to be very expensive, the cosmetic results are usually far superior to conventional approaches.

Answered by:
Dr. Scott Murray

Prostate and Breast Cancers: Is There a Connection?

13. Is there any connection between prostate and breast cancers?

Question submitted by:
Dr. Almas M. Adatia
North York, Ontario

Less than 10% of all breast cancers are associated with an identifiable genetic predisposition of which germline genetic mutations in *BRCA1* and *BRCA2* are the most common. Male carriers of a *BRCA2* mutation have an increased lifetime risk of breast cancer at approximately 80- to 100-times higher than that of the general population, and they have an approximately five- to seven-fold increased risk of prostate cancer.[1-2] Associations have also been reported between the *BRCA1* mutation and increased lifetime risk of breast and prostate cancers in men, but the evidence is less clear. In a large cohort study of 11,847 individuals with *BRCA1* mutations, there was a 1.8-fold increased risk of prostate cancer in males under 65.[2-3] Genetic testing should be offered to males newly diagnosed with breast cancer.

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2. Liede A, Karlan BY, Narod SA: Cancer Risks for Male Carriers of Germline Mutations in BRCA1 or BRCA2: A Review of the Literature. J Clin Oncol 2004; 22(4):735-742.
3. Thompson D, Easton DF: Breast Cancer Linkage Consortium. Cancer Incidence in BRCA1 Mutation Carriers. J Natl Cancer Inst 2002; 94(18):1358–1365.

Answered by:
Dr. Roger Y. Tsang

Discontinuing Isotretinoin before and after Orthopaedic Surgery

14. How long prior to orthopaedic surgery must a patient discontinue isotretinoin? How soon after surgery may the patient resume taking it?

Question submitted by:
Dr. David Eisen
Toronto, Ontario

There is no established recommendation with regards to taking isotretinoin before and after surgery. There is a theoretical risk for atypical scar formation with isotretinoin (half life: 10 to 20 hours) use. Therefore, for elective procedures, it seems reasonable to stop isotretinoin treatment a month prior to the procedure. However, there is no firm data to suggest that there is a need to forestall orthopaedic intervention for emergent procedures in isotretinoin patients and little evidence that there is a significant risk of adverse outcomes.

Answered by:
Dr. Scott Murray

Antidepressant Use during Perimenopause

15.

Does perimenopause affect the choice or efficacy of an antidepressant?

Question submitted by:
Dr. Glenda McIntosh
Whitby, Ontario

Perimenopause is the period that occurs in females, as early as the fourth decade of life that antecedes menopause. Perimenopause is associated with physiological and neurological chemistry changes that may explain some of the depressive symptoms that may present. A thorough case history must be employed to address the psychology of loss during this period, such as the loss of a parent, "empty nest" syndrome, or changes in employment.

Decreases in estrogen may be associated with a type of "cognitive fog" that must be delineated from early onset neurodegenerative disorders, but this clinical review would be like trying to find the zebra in a field of horses. Such loss of estrogen may respond to hormone replacement therapies in low doses. Estrogen itself is responsible for the creation of other neurotransmitters, directly and indirectly, and we know there is a strong interface between endocrine disorders and psychiatry, often with direct correlations noted. Serotonin levels drop when estrogen, progesterone, and natural androgens start to fluctuate during perimenopause.

This leads one to a serotonin hypothesis postulated as early as 1969, which still holds merit. Tightly binding serotonin selective reuptake inhibitors may be the medication of choice in the absence of grief or pycho-social stressors that are less than three months in duration.

Depending on Axis-III medical comorbidities or Axis-II psychiatric morbidities (*e.g.* post-traumatic stress disorder [PTSD]), a clinician may choose a serotonin-norepinephrine reuptake inhibitor (SNRI) if depression and pain co-exist.

However, this brings up a valuable consideration of estrogen, which is that estrogen seems to have a psychiatric neuroprotective effect. This is evidenced by the increase of schizophrenia seen in the mid-50s in females, as well as obsessive-compulsive disorders and bipolar disorder, which may have an increassed rate of incidence where an SNRI may not be indicated, and they may potentially even aggravate bipolar disorder.

Answered by:
Dr. Joel Lamoure

Over-the-counter Niacin Preparations

16.

Can you comment on over-the-counter niacin preparations and their efficacy?

Question submitted by:
Dr. Ken Armstrong
Niagara Falls, Ontario

Niacin, or vitamin B3, is a "broad spectrum" lipid-lowering drug. Traditionally, it was thought to inhibit adipose tissue triglyceride breakdown (lipolysis), which reduced circulating free fatty acid levels. This, in turn, caused the liver to produce less triglycerides and very low density lipoproteins (VLDL). Thus, triglycerides, VLDL, and its breakdown product low density lipoproteins[1] were all reduced. Niacin also increases high density lipoproteins (HDL), either by increasing synthesis or inhibiting clearance. Recently, a specific niacin receptor was reported.[2] Its endogenous ligand remains a mystery. Nicotinamide, the other commonly sold vitamin B3, does not have any of these effects (although it is useful in pellagra). Over-the-counter niacin is effective and inexpensive. It does cause flushing, so start with 100 mg b.i.d. or t.i.d. with meals, increasing (or decreasing) to 500 to 100 mg t.i.d. "Non-flushing niacin" (often nicotinamide) does not affect the lipid profile.

The Coronary Drug Project in the 1960s compared niacin with clofibrate, dextrothyroxine, and estrogens (none of which are currently recommended). Despite considerable dropouts, niacin did compare favourably to these other agents and placebo.[3] More recently, the AIM-HIGH investigators reported that extended release niacin added to a statin did not reduce atherosclerotic events, despite a favourable change in HDL concentrations.[4]

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Answered by:
Dr. Thomas W. Wilson

Diet and Excercise in Type 2 Diabetes

17. Is there any benefit to diet and exercise in Type 2 diabetics who are thin?

Question submitted by:
Dr. Simon NG
Vancouver, British Columbia

Therapeutic lifestyle changes, including adopting a healthy diet and increasing physical activity, are important adjuncts in the management of patients with diabetes. Consuming a healthy diet will help improve glycemic control in both obese and non-obese individuals. A decrease in the amount of calories obtained from fat, foods with high glycemic index, and increasing the consumption of fiber will be beneficial to all patients irrespective of their weight. Physical activity also plays a very important role. In addition to improving insulin sensitivity, which in turn will help improve glycemic control, physical activity also has positive effects on general well-being, blood pressure, lipids, and the musculoskeletal system. Although, I would not necessarily advocate a weight loss promoting diet or excessive physical activity in lean patients with diabetes, I would encourage them to incorporate healthy lifestyle changes.

Answered by:
Dr. Hasnain Khandwala

Diagnosis and Treatment of Anton's Syndrome

18. How does one diagnose and treat Anton's syndrome?

Question submitted by:
Dr. Stephen Shore
Langley, British Columbia

Cortical blindness occurs despite the anterior visual tracts being intact (meaning pupillary responses are preserved), due to lesions that are present in both occipital lobes. If there is also visual anosognosia (denial of loss of vision), associated with confabulation, this is referred to as Anton's syndrome.

Treatment of any reversible causes, such as edema from mass lesions or posterior reversible encephalopathy syndrome that can be associated with hypertension or hypoperfusion perioperatively, will often result in reversal of the deficit. If it is not a reversible insult to the occipital cortices, such as posterior circulation stroke, rehabilitation is possible. However, unless there is insight (meaning the recognition or understanding of the patient that he/she is blind), prognosis is considered poor.

Resource
1. Gaber TA: Rehabilitation of Cortical Blindness Secondary to Stroke. Neuro Rehabilitation 2010; 27(4):321–325.

Answered by:
Dr. Sarah A. Morrow

Are Flu Shots Recommended for Cancer Patients?

19. Should pneumonia and flu shots be recommended to patients newly diagnosed with cancer? Should these vaccines be given before surgical treatment and chemotherapy?

Question submitted by:
Dr. Elizabeth Chiu
North York, Ontario

In general, influenza and pneumonia vaccinations should be utilized in patients with cancer.[1,2] Factors, such as the stage of cancer and whether the patient will be receiving myelosuppressive chemotherapy, may affect the threshold, urgency, and timing of vaccination. The inactivated influenza vaccine should be administered at least 10 to 14 days before starting chemotherapy to allow for sufficient antibody production, but it may also be given prior to a cycle of chemotherapy to minimize cytopenia-related complications. Annual revaccinations should then follow. Similarly, the pneumococcal vaccination should be administered at least 14 days prior to the start of chemotherapy, but ideally four to six weeks prior. Although the evidence is limited, the pneumonia vaccine should not be given during an active chemotherapy course, as antibody responses appear to be suboptimal. Instead, if this can not be given prior to chemotherapy, then it should be given after chemotherapy is completed and after a three-month period has elapsed.

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2. Pneumococcal Vaccination in Adult and Pediatric Patients Undergoing Cancer Treatment. Alberta Health Services Clincal Practice Guideline SUPP-005, November 2012. www.albertahealthservices.ca/hp/if-hp-cancer-guide-supp005-pneumococcal-vaccination.pdf. Accessed: April 15, 2013.

Answered by:
Dr. Roger Y. Tsang

Differentiating Myocarditis from Myocardial Infarction

20.

Can cardiac enzymes help differentiate myocarditis from myocardial infarction?

Question submitted by:
Dr. Sheila Fergusson
Kelowna, British Columbia

Cardiac troponins are the most sensitive and specific biochemical markers of myocardial damage, and, when coupled with symptoms of visceral chest pain and electrocardiographic changes, they form the clinical triad for diagnoses of acute myocardial infarction. Unfortunately, troponin elevations indicate the presence, but not the mechanism, of myocardial injury, and they can not be used to differentiate between myocardial injury secondary to coronary thrombosis, as it occurs in coronary artery disease (CAD), from that of myocardial injury secondary to inflammation, as happens in myocarditis. In fact, troponin elevation can be detected in a wide variety of conditions, including pericarditis, acute pulmonary embolism, shock, sepsis, severe congestive heart failure, and renal failure.[1] While patients with myocarditis are commonly younger than patients with CAD and more often present with signs of inflammation, such as elevated C-reactive protein and fever, the diagnosis of myocarditis is challenging and remains one of exclusion; it is best confirmed by demonstrating the absence of flow-limiting coronary artery disease by angiography. The clinical entity of myocardial damage in the absence of occlusive coronary disease, referred to as myocardial infarction with normal coronary arteries, is more common than previously considered and constitutes an important differential diagnosis for chest pain presentations.[2]

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Answered by:
Dr. Theodore K. Fenske

Diagnosis of Carcinoid Tumour

21.

How to diagnose carcinoid tumour?

Question submitted by:
Dr. Zsuzsanna Gabor
Scarborough, Ontario

Patients with carcinoid tumours, also referred to as neuroendocrine tumours (NETs), may present with a wide range of symptoms, depending upon the location of the tumour; the GI tract is the most common location, followed by the pulmonary system. Patients often present with symptoms of carcinoid syndrome, including chronic flushing (face, neck, upper chest) and watery, non-bloody diarrhea, secondary to the secretion of serotonin and other vasoactive peptides. Other symptoms may include abdominal pain, bowel obstruction, changes in bowel habit, GI bleeding as seen with GI involvement and hemoptysis, dyspnea, and wheezing as seen with pulmonary involvement. Symptoms from right-sided valvular heart disease may also be present. An elevated 24-hour urinary excretion of 5-hydroxyindoleacetic acid, the end product of serotonin metabolism, is the optimal initial diagnostic test with high sensitivity and specificity. Serum chromogranin-A may also be considered for diagnosis, but this test has lower specificity and is most suitable for use in patients with a known diagnosis for ongoing follow-up of their disease course and assessments of treatment response. Radiological imaging with CT of the abdomen and pelvis (with or without CT chest if respiratory symptoms are present) or MRI of the abdomen and pelvis is useful to assess tumour size and location, as well as disease burden, including liver metastases. Similarly, an octreotide scan is also of benefit and allows for a functional assessment of somatostatin receptor expression. Upper and lower GI endoscopy should be performed if the primary site of origin is not clearly visualized on radiological imaging.

Answered by:
Dr. Roger Y. Tsang

Proton Pump Inhibitors for GERD

22. Any evidence that proton pump inhibitors really provide any benefit to patients with GERD?

Question submitted by:
Dr. Fraser Miller
Ottawa, Ontario

Significant randomized controlled trial (RCT) data exists with respect to the inhibition of gastric acid secretion in patients with gastroesophageal reflux disease (GERD). The most definitive evidence has indicated that healing of esophagitis is associated directly with antisecretory medication potency. A recent large-scale meta-analysis demonstrated that healing rates were the greatest in patients treated with proton pump inhibitor (PPI) therapy at 83%, with histamine-2 receptor antagonist (H2-RA) treatment rates of 52%, and placebo treatment rates of 8%.[1] The existing data has not suggested significant differences in efficacy amongst various PPIs at standard dosages, with minimal improvements in esophagitis healing rates with b.i.d. dosing (with an number needing to treat of 25).[1]

Symptomatic response of heartburn symptoms to PPI therapy is less robust. Despite the consistency of hierarchical benefit of PPI therapy in comparison to H2-RA versus placebo treatment in patient heartburn symptoms, efficacy rates are markedly heterogenous amongst studies (likely reflective of variable study populations and complete symptomatic resolution outcome measures in these trials).[2] Individuals who satisfy the definition of GERD but who do not have either Barrett's esophagus or definite endoscopic esophageal mucosal breaks (erosion or ulceration) have been classified as having non-erosive reflux disease (NERD).[3] Epidemiological data have suggested a prevalence of NERD in the general population of 50 to 70%.[4] Overall, the proportion of NERD patients responding to a standard dosages of PPI, is approximately 20 to 30% lower than observed in patients with erosive esophagitis.[4] As such, the current body of evidence supports the use of PPI therapy in the spectrum of symptomatic and/or complicated GERD, in combination with appropriate dietary and lifestyle modification.

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Answered by:
Dr. Theodore Xenodemetropoulos

Treating Deep Vein Thrombosis below the Knee

23.

Do we have to start treating deep vein thrombosis (DVT) below the knee?

Question submitted by:
Dr. Falih M. Hafuth
Guelph, Ontario

Venous thromboembolic events include superficial thrombophlebitis, deep venous thrombosis (DVT), and pulmonary embolism (PE). A DVT of the lower extremities can be defined as proximal if it occurs at or above the trifurcation of the popliteal vein, and it is considered distal if it occurs below that. The terms "above the knee" and "below the knee" should be discouraged. A proximal DVT of the lower extremity must be treated with appropriate therapeutic anticoagulation to prevent the progression of the clot. However, a distal DVT does not require treatment with anticoagulation, because the risk of progression to a proximal DVT and PE is relatively low. Also, a distal DVT is more appropriately called distal venous thrombosis, rather than "below the knee" DVT, as there is no deep venous system below the knee.

Patients with a distal venous thrombosis can be given anti-inflammatory drugs, such as NSAIDs, and a compression Doppler-ultrasound should be repeated in a week to assess the progression to a proximal DVT.

There is controversy surrounding the management of distal venous thrombosis, and some thrombosis clinics treat these patients with a short course (six weeks to three months) of anticoagulation therapy.

It is important to remember that there may be an associated PE and to assess for symptoms, such as the sudden onset of shortness of breath, pleuritic chest pain, non-productive cough, and hemoptysis.

Answered by:
Dr. Cyrus Hsia and
Dr. Kang Howosn-Jan

Chest X-ray after Contracting Tuberculosis

24.

How long after a person contracts primary TB do changes appear on chest x-ray?

Question submitted by:
Dr. Roshan Dheda
Bradford, Ontario

Airborne droplet nuclei containing tuberculosis (TB) bacilli are inhaled and enter alveoli where multiplication begins. This is usually subpleural, in the midlung zones, and is occult, mostly with a single focus. Pneumonitis and consolidation may develop in this region with minimal symptoms. Associated regional adenopathy may cause bronchial compression and cough, especially in children. During this stage lymphohematogenous dissemination may occur, commonly with metastatic spread to the apical and posterior lung segments. Tuberculin reactivity appears after three to nine weeks and may be associated with local necrosis (known as a Ghon complex at the primary infection site) and then calcification, both of which may be visible on chest x-ray. Thus, when primary TB manifests on x-ray, it is usually with hilar nodes and an inconspicuous midzone infiltrate. Large nodes may cause atelectasis of a segment or lobe, particularly in children. Less commonly, these same tiny calcifications, which may contain viable bacilli, are also seen at the metastatic foci, typical apical. These foci may reactivate into areas of consolidation or necrosis and cavitation, either immediately or, more commonly, after prolonged periods of latency. After reactivation, with treatment or spontaneous resolution, fibrosis and more extensive scarring may develop in the region.

Answered by:
Dr. Michael Libman

Methotrexate's Affect on Lung Function

25. How does methotrexate affect lung function?

Question submitted by:
Dr. J. Thomas
Toronto, Ontario

Methotrexate has been used to treat a variety of lung conditions over the years, but that role has faded. It is rare today to find patients on methotrexate as treatment for asthma or interstitial lung disease, other than when it is used as a corticosteroid-sparing agent, which is done most often in patients with sarcoidosis.

Methotrexate and the lung are more often linked when it is thought that methotrexate is the cause of lung disease. Adverse lung effects are thought to occur in approximately 10% of patients treated with methotrexate. These effects often occur early after the initiation of methotrexate, but they may also develop after years of treatment. The most common lung effect is an interstitial process, which is associated with a restrictive pulmonary function defect: low vital capacity, low total lung capacity, and reduced lung diffusion measurement. In a few instances, there is associated hilar lymph node enlargement, and pleural effusions have also been described. Lung toxicity from methotrexate may occur more commonly than the better-recognized liver toxicity.

Monitoring lung function in patients receiving methotrexate is not recommended, as changes in lung function will often develop well after the onset of symptoms of lung disease and abnormal radiology.

Methotrexate suppresses the immune responses and may be associated with opportunistic lung infections, including *Pneumocystis jiroveci* pneumonia.

Answered by:
Dr. Robert Cowie

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