Exhaled nitric oxide (eNO) has been widely used in the assessment of patients with asthma. Elevated levels of NO in the exhaled breath relate to the degree of eosinophilic inflammation in the airways and correlate with steroid-responsiveness. The level of eNO may vary a great deal from subject to subject, and, thus, a single measurement may not be of great value in assessing the extent of airway inflammation. The measurement may be useful in assessing change and has recently been suggested as an objective method for assessing a patient’s adherence with inhaled corticosteroid therapy.

Measurement of eNO has been difficult with some of the older instruments. eNO may also be contaminated by NO from the nose. The measurement requires the patient to exhale at a constant flow.

Normal values have not been established, but a value of < 25 parts per billion is thought to reflect an absence of eosinophilic airway inflammation.

Although the measurement of eNO has been adopted quite widely in the USA, it has not become a standard part of assessing patients with asthma in Canada. The value of eNO measurement in assessing treatment adherence (the major reason for poor treatment outcomes in asthma) might lead to its greater use, especially in centres that manage difficult-to-control asthma.

Answered by:
Dr. Robert Cowie
Testing for Gastrin Levels in the Investigation of Dyspepsia

2. At what point would you consider testing gastrin levels in the investigation of dyspepsia?

Question submitted by:
Dr. Grant Davies
Calmar, Alberta

In the context of a multifactorial etiology of dyspepsia, research investigating the pathophysiology of various gastrointestinal hormones has developed. Some data have demonstrated that abnormal gastrin levels may play a role in the pathophysiology of gastric dysmotility in patients with functional dyspepsia.1 Furthermore, *Helicobacter pylori* infection and peptic ulcer disease have long been implicated in association with disturbances of serum gastrin levels.2-4 Clinical testing of fasting serum gastrin levels has, however, been reserved for the investigation of gastric acid hypersecretory states, and it has no defined role in the assessment of patients with undifferentiated dyspepsia.5

References

Answered by:
Dr. Theodore Xenodemetrooulos

Anything New on Migraine Headaches?

3. Are there any new definitions of migraine headaches that can help sort out treatment options?

Question submitted by:
Dr. Kathleen Davis
Ottawa, Ontario

There are no new definitions of migraine headaches; however, the Canadian Headache Society recently published guidelines regarding migraine prophylaxis.1

Reference

Answered by:
Dr. Sarah A. Morrow
Iron overload (referred to as hemochromatosis) is often found incidentally in patients on routine work-up. The serum ferritin is often found to be elevated, and this is generally referred to as hemochromatosis. Unfortunately, the serum ferritin is an acute phase reactant that can be elevated for other reasons, such as infections or inflammation. Hence, a work-up for other causes of an elevated ferritin is warranted. This should include chronic infection, liver disease (even fatty liver disease), underlying connective tissue diseases, and other inflammatory conditions.

The gold standard for diagnosis of iron overload is a liver biopsy. However, this is invasive and not generally necessary. Transferrin saturation is considered a better surrogate marker of iron overload than serum ferritin and is less invasive than a liver biopsy. Often, if the serum ferritin is elevated but the transferrin saturation is normal, the patient, most likely, does not have iron overload and a work-up for other causes should be sought as described above. A simple first step after a thorough history and physical examination is to determine if there is a historical ferritin level for comparison. Should this value continue to increase on future tests, one should consider these other causes.

True iron overload can be hereditary or acquired due to iatrogenic blood transfusions or excessive consumption of iron supplements. Typically, hereditary hemochromatosis (HH) presents in the fifth and sixth decades when increased iron absorption has accumulated to significant levels. The screening test for HH is a molecular diagnostic test to assess for the common mutations in the (high iron) HFE gene. At this point, if you suspect HH and are considering molecular testing, a referral to a hematologist or hepatologist is reasonable. Regardless of the cause of hemochromatosis, it is essential to determine the clinical effect on end organs, such as the liver, pancreas, and heart, and to manage these appropriately.

Answered by:
Dr. Cyrus Hsia and
Dr. Kang Howson-Jan
Cyclic vomiting syndrome (CVS) is still very much a diagnosis of exclusion. There are no definitive tests to diagnose this disorder or to rule it out as the cause of episodic vomiting. However, the North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition has produced a Consensus Statement on this disorder, which suggests a good approach for making the diagnosis. First, children must meet all of the diagnostic criteria for CVS, which include:

- At least five attacks over any interval or a minimum of three attacks over a six-month period
- Episodic attacks of intense nausea and vomiting lasting from 1 hour to 10 days and occurring at least one week apart
- The patient’s symptoms are the same for each episode (i.e. the events are stereotypical for that patient and for each episode)
- Vomiting during attacks occurs at least four times an hour for at least one hour
- A return to baseline health between episodes

It is also recommended that electrolytes, glucose, blood urea nitrogen, and creatinine be checked and an upper gastrointestinal series be performed to rule out malrotation with intermittent volvulus. If the child meets the diagnostic criteria and has no other findings associated with another disorder, no further investigations are needed. However, if there are signs of bowel obstruction, metabolic disease, or neurological disorders, then other investigations, based on the child’s presentation, will need to be done to rule out these disorders before a diagnosis of CVS can be made.

Resource

Answered by:
Dr. Krista Helleman
Subclinical Hyperthyroid Patients

6. What are the long-term risks of not treating a subclinical hyperthyroid patient?

Question submitted by: Dr. Jeanette Dionne
Carp, Ontario

Subclinical hyperthyroid patients need not be treated if the low TSH is thought to be transient, such as during thyroiditis. Patients may be observed, especially if under the age of 60. Otherwise, symptoms may be present that dictate treatment. In all patients, but especially in older patients, there is an increased risk of bone loss and of supraventricular tachyarrhythmias (especially atrial fibrillation) that have their own morbidity. These would be of more concern if there are risk factors already present for these complications. Thus, treatment should be considered in most patients after having a full discussion with the patient.

Overt hyperthyroidism has all of these concerns, usually with symptoms, as well as progression of problems, such as muscle weakness, mental distress, etc. Thus, in nontransient states, treatment is always the clinical decision, even in the absence of overt symptoms.

Answered by:
Dr. Bernard Corenblum
What is the best way to increase iron intake in a young, nonmeat-eating child (i.e., which iron supplement is best tolerated)?

Question submitted by: Dr. Christina Fisher
Toronto, Ontario

A vegetarian diet is defined as one that does not include meat or seafood, or products containing those foods.¹ The iron in plant-based foods is nonheme iron, primarily in the form of ferric complexes.² In the process of digestion, the iron is reduced from the ferric to ferrous form, which is more readily absorbed. The absorption of nonheme iron is enhanced by ascorbic acid in fruits and hydrochloric acid in the gastric juice and is inhibited by phytates (in bran), polyphenols (in certain vegetables and legumes), tannins (in tea), and calcium and phosphate (in high concentration in unmodified cow’s milk).² Consumption of fortified foods, such as cereals and bread, can help vegetarian children meet some of their iron needs.¹

Iron supplementation therapy, if necessary, should consist of oral administration of one of the ferrous salts, as ferric salts are harder to absorb.² Ferrous sulfate is usually preferred because of its low cost and high bioavailability.³ Ferrous sulfate is 20% elemental iron by weight. For best absorption, iron should be given between meals and not with milk. Transient staining of the teeth may occur with liquid iron preparations and can be minimized by placing the medication with a dropper toward the back of the tongue. Gastrointestinal side effects consist mainly of nausea, constipation, diarrhea, and abdominal pain. They are uncommon and are dose related.

References

Answered by:
Dr. Alexander K.C. Leung
Measuring CEA Following Dysplastic Colon Polyps

Despite data demonstrating the variably elevated immunohistochemical expression of carcinoembryonic antigen (CEA) in dysplastic colonic polyps and having an established role in the surveillance of patients after curative treatment in established colon cancer, there is currently no role for serum CEA in the follow-up of dysplastic colonic polyps.1-5

References

Answered by:
Dr. Theodore Xenodemetropoulos
Hot flashes are associated with menopause and perimenopause and result from the vasomotor effects of declining estrogen levels. Most women find this symptom distressing, and, in some women, it can be quite debilitating, persisting for five years or more. Lifestyle changes, including weight loss, smoking cessation, and avoidance of triggers, such as alcohol and hot drinks, should be encouraged as a baseline. Given the concerns surrounding CVD and cancer risk associated with estrogen replacement therapy, nonhormonal prescription medications can be tried, but they are associated with their own adverse effects. Venlafaxine (antidepressant), clonidine (antihypertensive), gabapentin, and belladonna-ergotamine-phenobarbital have been used with varying success. Herbal products and complementary therapies, such as soy and black cohosh, have very limited efficacy and safety data, and they do not appear to be more effective than placebo.

Ultimately, the most effective treatment for hot flashes has been estrogen replacement (with progesterone for endometrial protection); it should be prescribed for the shortest period of time possible and in the lowest dose. Unfortunately, there is no ideal treatment that can stop hot flashes so that when the therapy is terminated, the hot flashes won’t resume. In most women, hot flashes can be ameliorated but not avoided.

In women affected by premature ovarian failure, hormone replacement is advised until the expected age of menopause at 51-years; after this point, it is suggested that the patient should be weaned off the estrogen, thus, working through the symptoms of menopause.

Answered by:

Dr. Cathy Popadiuk
First-line Medications for Neuropathic Pain

What is the first-line medication for neuropathic pain in cancer patients?

Question submitted by:
Dr. Lorraine Wood
Toronto, Ontario

Neuropathic pain is not an uncommon entity encountered in cancer patients, and it is often present in conjunction with other types of pain (somatic and/or visceral). It is usually described as an electrical or burning sensation, and it may be caused by direct nerve compression by a tumour; cancer treatments, including surgery and chemotherapy; and paraneoplastic syndromes. Typically, patients are already on opioid medications, and gabapentin is the best studied, first-line medication for neuropathic pain in this population.\(^1,2\)

Gabapentin should be started at a low dose and titrated upwards as tolerated; the main side effects are dizziness and somnolence. Pregabalin, a medication similar to gabapentin, may also be used.

References

Answered by:
Dr. Roger Y. Tsang

Systemic Steroids and Cortisol Levels

When a patient has been treated with systemic steroids, how long after the course of treatment is completed are cortisol levels expected to return to normal?

Question submitted by:
Dr. T.A. Wulff
Vancouver, British Columbia

Treatment with systemic glucocorticoids leads to suppression of the hypothalamic pituitary adrenal axis and causes secondary adrenal insufficiency. In general, the higher the dose of glucocorticoid and the longer the duration of treatment, the longer it takes for the hypothalamic pituitary adrenal axis to recover. In patients who have been treated with high doses of systemic steroids, complete recovery of the adrenal axis can take up to one year. The adrenocorticotropic hormone stimulation test can be employed to see if the hypothalamic pituitary adrenal axis has recovered. It is important not to abruptly discontinue the glucocorticoids without ensuring the integrity of the hypothalamic pituitary adrenal axis, as this can lead to a life-threatening adrenal crisis.

Answered by:
Dr. Hasnain Khandwala
Most Appropriate Meningitis Vaccine for Health Care Workers

A 70-year-old nurse wishes to be immunized against meningitis, which, if any, is the most appropriate meningitis vaccine for her?

Question submitted by:
Dr. Suzy Liu
Richmond Hill, Ontario

We do not routinely vaccinate health care workers against meningitis (meaning meningococcal infection). Although one might think that a nurse would have an increased risk of exposure, especially in a pediatric environment, empiric evidence has demonstrated that these workers simply do not appear to contract infection more than the general population. This is likely for two reasons. First of all, standard infection control precautions are likely sufficient in preventing the nosocomial transmission of meningococcal infection. In addition, when possible meningococcal exposure is detected in the health care setting, effective prophylactic treatment with antibiotics is usually offered. Secondly, meningococcal disease is rare in older adults, probably due to acquired immunity after accumulated exposure to nonpathogenic strains. The only health care workers who are routinely vaccinated are microbiology lab workers who handle culture materials. Unfortunately, there have been several lab-acquired cases over the years, with severe sequelae, including death. The only other reason to routinely vaccinate an older adult would be for travel to places where meningococcal disease is endemic or where vaccination is required by the destination country, most commonly Saudi Arabia. In all cases, we generally now use one of the conjugated quadrivalent meningococcal vaccines.

The conjugated vaccines are not indicated for adults over 55-years-of-age, due to a lack of safety and efficacy data. Officially, these older adults should use the older polysaccharide vaccines. However, these vaccines are known to have limited efficacy, and data on booster doses are minimal. Deciding which vaccine is best for these adults requires individualized risk-benefit analysis.

Answered by:
Dr. Michael Libman
The phrase “poor R wave progression” refers to the progressive increase in amplitude of the initial upward (positive) deflection of the ventricular depolarization QRS complex above the ECG baseline as it progresses from precordial lead V1 to V6. The point where the positive R wave deflection is equal or equiphasic to the negative downward S wave deflection is the transition zone, typically occurring at lead V3 or V4 or somewhere between them. If this transition zone is beyond V4, poor R wave progression is said to occur. This takes place due to clockwise rotation of the heart about its longitudinal axis, and it is seen most frequently in patients who have wide thoracic cavities and/or those who are overweight. While the differential diagnosis includes anterior infarction — more likely if there is complete absence of R waves in the first number of precordial leads — numerous other possibilities exist, including conduction abnormalities (LBBB, LAFB), left ventricular hypertrophy, and pulmonary disease.

By contrast, ST segment elevation refers to the early repolarization phase of both ventricles, extending from the end of the QRS complex to the beginning of the T wave. While this segment is usually isoelectric (at the same level as the resting baseline), elevation above the baseline can occur for a number of reasons, including benign early repolarization variant in a healthy person and not-so-benign myocardial injury from acute myocardial infarction.

The value of any test, ECG included, lies in the clinical context, and an ECG is most useful in the hands of a seasoned clinician who has talked to and examined the patient. In an otherwise healthy person, poor R wave progression and nonspecific ST changes most likely reflect the patient’s body habitus and not significant cardiac pathology. Transthoracic ECHO can be done simply and safely to assess regional wall motion of the left ventricle and to confirm the presence or absence of structural heart disease.

References

Answered by:
Dr. Theodore K. Fenske
Would you treat a 40-year-old male with an LDL level of four or higher who is a nondiabetic, nonsmoker?

Question submitted by: Dr. E. Dias
Winnipeg, Manitoba

The Canadian Cardiovascular Society (CCS) guidelines for the diagnosis and treatment of dyslipidemia\(^1\) would recommend that this patient undergo an assessment of his CV risk by evaluating his 10-year risk of CV events using the Framingham Risk Model.\(^2\) Adult men over 40-years-of-age, women over 50-years-of-age, and post-menopausal women should be screened for lipid levels. Patients with modifiable CV risk factors, chronic inflammatory diseases, chronic obstructive pulmonary disease, human immunodeficiency virus infection, chronic kidney disease, abdominal aortic aneurysm, or erectile dysfunction are at increased risk and should be screened at any age. This risk assessment should be repeated every three to five years or when the patient’s risk profile changes.

In order to complete a risk assessment using the Framingham Model, you would need to know the patient’s gender, age, total cholesterol, high-density lipoprotein (HDL), BP, smoking status, history of diabetes, and history of any vascular disease. There are online resources and smartphone applications to assist with calculating a patient’s Framingham Risk. This calculation will provide an estimated 10-year percent risk of developing CVD, including coronary artery disease, stroke, peripheral vascular disease, congestive heart failure and CV death. The risk score is divided into low risk (< 10%), moderate risk (10 to 20%) and high risk (> 20%). It is recommended that the Framingham Risk score be modified in the setting of a family history of premature (men < 55-years-of-age, women < 65-years-of-age) CV disease by doubling the calculated percent risk. Each risk category has a different lipid target recommended by the CCS guidelines on dyslipidemia.

For the patient in question, assuming he is normotensive with an average HDL and total cholesterol, he would have a low-risk Framingham Risk Score of approximately 7%. This would need to be doubled if he had a positive family history of premature CVD. Treatment should be initiated if his LDL is greater than 5 mmol/L with a 50% goal reduction in his LDL. The CCS guidelines suggest that, if your patient’s Framingham Risk is greater than 5% and he or she does not meet indications for treatment, additional testing can be considered for further risk assessment.

References

Answered by:
Dr. Brett Heilbron
Switching From OCP to HRT to Control Perimenopause

For patients on OCP for control of perimenopause symptoms, are there appropriate lab investigations to help determine when to change to HRT, presuming treatment will still be required for symptoms?

During the seven days off of the active OCP, measure a serum follicle-stimulating hormone on the last day. If it is elevated (more than three times normal), this indicates that the menopausal state has occurred and the switch may be attempted.

Answered by:
Dr. Bernard Corenblum

Question submitted by:
Dr. Lynda Nguyen
Edmonton, Alberta
Systemic hypertension is a major risk factor for CVD, and it is present in the majority of patients with coronary artery disease, stroke, heart failure, chronic kidney disease, and peripheral arterial disease. Fortunately, this is a modifiable risk factor. Angiotensin-converting-enzyme (ACE) inhibitors, ARBs, β-blockers, calcium channel blockers, and diuretics have all reduced CV events in randomized trials, underscoring the importance of utilizing them in achieving the recommended therapeutic goals.\textsuperscript{1} And while all anti-hypertensive medicines are effective to a certain degree, some are more effective than others in certain patient groups. For example, thiazide-type diuretics are recognized as the cornerstone of antihypertensive therapy in black patients and the elderly, and the response to calcium channel antagonists is also good in these patient groups.\textsuperscript{2} Patients with diabetes benefit from ACE inhibitor therapy to control BP, and patients with concomitant left ventricular dysfunction are best served with a combination of ACE inhibitor and β-blocker therapy. Although most patients with hypertension will require more than one agent to achieve therapeutic BP goals and some more than five agents, certain combinations should be avoided. In particular, the combination of an ACE inhibitor with an ARB is not recommended in people with uncomplicated hypertension, diabetes (without micro- or macroalbuminuria), chronic kidney disease (without nephropathy), or ischemic heart disease (without heart failure).\textsuperscript{3}

It’s also important to emphasize that, regardless of medication choice, lifestyle modification, such as salt restriction, remains critical in optimizing BP control. An excellent resource for BP management is the Canadian Hypertension Education Program, a guide that encourages health care professionals to stay informed about hypertension through automated updates at www.hypertension.ca/professional.\textsuperscript{4}

References

Answered by:

\textbf{Dr. Theodore K. Fenske}
Should High-risk Patients Be Screened for Lung Cancer?

Chest x-rays (CXR) have not been shown to be beneficial for lung cancer screening. With regard to low-dose CT screening, a large, randomized clinical trial published in 2011 demonstrated a relative reduction in lung cancer mortality of 20% using low-dose CT screening (LDCT) compared with the CXR control arm in high-risk individuals. The National Lung Screening Trial randomized 53,454 patients, ages 55 to 74, who were current or former smokers (quit smoking in the preceding 15 years), with a 30 pack-years or greater cigarette smoking history, to receive LDCT or CXR annually for three years. However, the cost-effectiveness of this approach has not yet been determined. Although the US Preventive Services Task Force recently added LDCT screening for lung cancer as part of its recommendations, a Pan-Canadian Early Detection of Lung Cancer Study is currently ongoing to evaluate the value of CT screening in relation to costs and resource utilization data. It is anticipated that the results of this trial will help answer the question of whether LDCT screening should be routinely used within the Canadian context.

Reference

Answered by:
Dr. Roger Y. Tsang
Discontinuing PPIs Following Long-term Use

What is involved in a trial of discontinuing PPIs following long-term use?

Question submitted by: Dr. D. Hawkins
Westbank, British Columbia

Fundamentally, PPI therapy for the treatment of GERD is intended to alleviate symptoms, repair damage to esophageal mucosa, prevent the development of associated complications of uncontrolled disease, and improve health-related quality of life.\(^1\) \(^2\) Indefinite treatment is recommended in patients with a history of erosive esophagitis for the prevention of recurrent esophagitis or mucosal breaks and the minimization of progression to associated disease complications; however, this protective benefit for patients with nonerosive esophageal reflux disease (NERD) is less clearly defined.\(^1\) \(^2\) In patients with NERD whose reflux symptoms have responded well to a standard-dose PPI, discontinuation of treatment can be considered to assess for the need of long-term therapy.\(^1\) Based on the available evidence, “on-demand” PPI therapy (i.e., administered for symptomatic heartburn episodes) has demonstrated efficacy in the long-term management of patients with NERD and those with mild and uninvestigated reflux symptoms.\(^2\)

References

Answered by:
Dr. Theodore Xenodemetropoulos
Why do we not see rheumatic fever anymore?

Question submitted by: 
Dr. Monika Rempel  
Whistler, British Columbia

The timing of your question is interesting. Just two weeks ago, while working on a project in South America, several physicians asked me just the opposite of your question: “Why do we see so much rheumatic fever here?” That started me thinking, so I was really ready for your question.

We do still see rheumatic fever but, fortunately, not very often. The answer to both questions lies in looking at the risk factors for the development of rheumatic fever. These include overcrowding, poor sanitation, poverty, and poor access to basic medical services.

In both developing and developed countries, pharyngitis and skin infection (impetigo) are the most common infections caused by group A streptococci. As you know, group A streptococci are the most common bacterial cause of pharyngitis with the peak incidence in children 5- to 15-years-of-age. Crowded living conditions, with close interpersonal contacts, contribute to the rapid spread and the persistence of virulent streptococcal strains. Poor sanitation and poverty, with limited access to healthy food choices and shelter, contribute to the spread and severity of streptococcal infections. When you add in poor access to basic medical services, the diagnosis and the treatment of streptococcal infections may never occur or occurs too late.

Most cases of rheumatic fever in the world exist in the tropics. The heat and humidity compound the known risk factors for rheumatic fever. Rheumatic heart disease, which develops under these circumstances, is particularly virulent with advanced forms of rheumatic valvular disease already evident in children from ages 5 to 12.

Answered by: 
Dr. Wayne Warnica
How to Read Abnormalities on Cardiolite®

How do you determine whether abnormalities on Cardiolite® are related to sleep apnea rather than coronary artery disease?

Exercise myocardial perfusion imaging using technetium-99m-labelled sestamibi (Cardiolite®) has somewhat better accuracy than exercise ECG testing in coronary artery disease. The image is produced by photons emitted by the tracer, which has been sequestered in viable myocardial cells. If the tracer is not delivered to myocardial cells, no photons are emitted. Myocardial perfusion may be normal at rest, but inadequate during exercise. There will be reduced tracer delivered to myocardial cells during exercise, and a dark area on the image. The overall sensitivity (positive scan in patients with > 70% stenosis of a major coronary vessel) is about 85%, while the specificity (negative scan in patients without coronary artery disease) is only about 65%.\(^1\) False positive scans may be caused by soft tissue attenuation of photons. Obesity is a major factor,\(^2\) which, in turn, is often associated with sleep disordered breathing. There are technical algorithms that can partially compensate for body size. Very obese patients may be better served by exercise ECG testing.\(^1\)

References

Answered by:
Dr. Thomas W. Wilson

Field Cancerization and Therapy for Actinic Keratoses

Please comment on the concepts of field cancerization and field therapy in the setting of actinic keratoses.

We recognize that when actinic keratoses appear, there are usually pathologically significant, but visibly imperceivable actinic changes in the surrounding area of skin. Therefore, options for treating the visible and subclinical actinic changes are appealing. The use of topical chemotherapy, such as 5-fluorouracil, immunotherapy (imiquimod); cytotoxic/necrotic agents (ingenol mebutate); and photodynamic therapy allows the clinician to treat the whole area of photodamaged skin, rather than just spot treating the visible keratosis (cryotherapy).

Answered by:
Dr. Scott Murray
Effectiveness of Dry Powder Inhalers

How effective are dry powder inhalers?

Question submitted by:
Dr. Robert Dickson
Hamilton, Ontario

Dry powder inhalers have been widely accepted for the delivery of medications to the bronchial tree. In general, they have been effective, although many deliver quite a small proportion of respirable particles. One of the problems with dry powder inhalers may be that they are perceived as being very easy to use, and, as a result, many patients have not been given careful instructions. The situation is often aggravated when patients are required to use several different types of inhalers, each requiring different techniques. As an obvious example, the dry powder inhalers require a forceful inhalation, while metered-dose inhalers achieve optimal lower respiratory tract deposition with a long, slow inhalation. On review, patients will often develop an extraordinarily wide variety of inappropriate techniques when using dry powder inhalers, and, as with metered-dose inhalers, these may include techniques that are incompatible with effective use. A common error is the habit of breathing into the device, which moistens the powder, rendering it clumped and no longer respirable.

The take-home message is that, as with metered-dose inhalers, patients need careful instruction on the use of dry powder inhalers. Physicians and pharmacists are often not familiar with these techniques, and patients should be referred to a local certified respiratory/asthma educators for appropriate instruction.

Answered by:
Dr. Robert Cowie
Differential for Halitosis in a Patient with a Clear Dental Check

What is the differential for halitosis in a patient who has had a clear dental check?

Question submitted by: Dr. Rosalie Swart, Kelowna, British Columbia

Although halitosis has multifactorial origins, the source of 90% of cases is the oral cavity. The causes of halitosis can be divided into two categories: physiologic and pathologic. The physiologic conditions include lack of flow of saliva during sleep, food debris, alcohol intake, and smoking. The pathologic causes are much more numerous. An arbitrary classification with some examples is summarized as follows:

- **Disorders of the oral cavity and upper gastrointestinal conditions:** poor oral hygiene, dental plaque or caries, gingivitis, stomatitis, periodontitis, hairy tongue, and oral malignancy, as well as salivary gland dysfunction, dehydration, radiotherapy, Sjögren’s syndrome, peritonsillar/retropharyngeal abscess, cryptic tonsillopathy, Vincent angina, carcinoma of the tonsil or pharynx, pharyngitis sicca, gangrenous angina, Zenker’s diverticulum, post-cricoid carcinoma, and congenital bronchoesophageal fistula
- **Disorders of the lower gastrointestinal tract:** gastric carcinoma, hiatus hernia, gastroesophageal reflux, pyloric stenosis, enteric infections, neurologic disorders: dysosmia and dysgeusia
- **Disorders of the upper respiratory tract:** chronic sinusitis, foreign bodies, atrophic rhinitis, granulomas (tuberculosis, syphilis, etc.), adenoiditis, and carcinoma of the larynx
- **Disorders of the lower respiratory tract:** lung cancer, bronchiectasis, necrotizing pneumonia, and empyema
- **Systemic diseases:** leukemia, agranulocytosis, febrile illness with dehydration, ketoacidosis, hepatorenal failure and zinc deficiency
- **Drugs:** lithium salts, griseofulvin, thiocarbamide, dimethyl sulfoxide, and anticholinergic drugs
- **Functional:** psychoses and depression

Detecting the cause of halitosis is possible by performing a detailed clinical examination. In most cases, attention should first be directed to the mouth and pharynx. All areas of the oral mucosa, including the floor of the mouth and the lateral aspects of the tongue, hard palate, and teeth, should be carefully inspected. Palpation with a glove is often useful to evaluate suspicious-looking lesions of the posterior tongue or retromolar trigone. The nasal passages should be examined with a nasal speculum.

Further investigations include fiberoptic endoscopy, sinus x-ray/CT scan, cultures, cytology, and biopsies. That should be done if indicated by the history and or physical findings. In most cases these procedures will serve to confirm the diagnosis.

Answered by:
Dr. Ted Tewfik
TREATING MOLLUSCUM CONTAGIOSUM WITHOUT CRYOTHERAPY

A six-year-old girl presents with molluscum contagiosum lesions on her chin that are increasing in number. Mom doesn't agree with cryotherapy or other chemical treatments. What can be done?

There is a whole range of options available — tretinoin, salicylic acid, and even benzoyl peroxide. Treatment depends on how broad the parents’ definition of chemicals is. Perhaps the most reasonable therapy for such a case is no treatment at all. This is a self-limited disorder, and, sometimes, expectant waiting for spontaneous resolution is the most reasonable option.

Answered by:
Dr. Scott Murray

Question submitted by:
Dr. Saghi Salehi
Newmarket, Ontario

ORDERING MRI FOR BREAST CANCER SCREENING

When is it appropriate to order MRI for breast cancer screening?

The American Cancer Society recommends that breast MRI screening be performed for women with a greater than 20 to 25% lifetime risk of breast cancer.¹ This includes women with a history of Hodgkin’s disease who have received chest irradiation, as well as those with a strong family history of breast cancer. The Gail Model risk assessment tool may be used to estimate a woman’s breast cancer risk.²

Answered by:
Dr. Roger Y. Tsang

References