Screening for Peripheral Neuropathy in Diabetes Mellitus

In diabetes mellitus, is it recommended that we screen for peripheral neuropathy. If early peripheral neuropathy is discovered, how does that affect the management of diabetes mellitus?

Submitted by: Donald Pinksen, MD, Guelph, Ontario

Peripheral neuropathy is very common and often under-diagnosed. Up to 40% to 50% will have detectable sensorimotor neuropathy within 10 years of diagnosis. Because Type 2 diabetes may be present for a number of years before diagnosis, neuropathy may already be present. Other causes of neuropathy must be ruled out and treated such as hypothyroidism, B12 deficiency, nerve compression just to name a few. Treatment depends on the type of neuropathy and the associated signs and symptoms. Optimal glycemic control is effective for prevention and treatment of peripheral neuropathy. Multiple medications are available for neuropathic pain such as tricyclics, gabapentin, pregabalin, duloxetine, opioids and others.

Answered by: Dr. Vincent Woo

Treating Temporal Arteritis and Polymyalgia Rheumatica

Please comment on the difference in dosing and length of treatment with oral steroids when treating temporal (giant cell) arteritis and polymyalgia rheumatica (PMR).

Submitted by: Alex Vukovic, MD, Calgary, Alberta

PMR requires a lower dose of steroid than giant cell arteritis. PMR responds to prednisone at doses of 7.5 mg p.o. q.d. to 20 mg p.o. q.d. A good response usually occurs within 24 to 48 hours, which is also helpful diagnostically. Once symptoms resolve, a slow taper over several months (at least six) can be undertaken while following clinical response and inflammatory markers. In giant cell arteritis, the initial dose of prednisone is 40 mg p.o. q.d. to 60 mg p.o. q.d. This dose is maintained for one month, with a slow taper aiming to reduce prednisone to about 10 mg by six months, with continued reduction up to 12 months. Most patients need treatment for up to one to two years with steroids. It is important to remember that all these patients require therapy for osteoporosis prevention.

Answered by: Dr. Michael Starr and Dr. Emil Nasli
3. Differentiating Between Vascular Dementia and Alzheimer’s Disease

Vascular dementia vs. Alzheimer’s. Are there any tips to differentiate? Is one treatment medication better than another?

Submitted by: Gayle Garber, MD, Conception Bay South, Newfoundland

Vascular dementia is the second leading cause of dementia after Alzheimer’s disease. Vascular dementia can be caused by ischemic stroke, cerebral hemorrhage or anoxic/ischemic injury. It usually has abrupt onset and fluctuating course in contrast to Alzheimer’s disease which has gradual onset with a slowly progressive course. There is usually a history of stroke with focal neurological signs and symptoms or multiple lacunar infarct and the deterioration may be step-wise. Nocturnal confusion, depression, emotional incontinence, hypertension, atherosclerosis and somatic complaints may be seen. Personality is usually more preserved as compared to Alzheimer’s disease. There is prominent frontal and executive dysfunction with less language impairment as compared to Alzheimer’s disease. Vascular dementia affects men more often than women. There may be some overlap of symptoms of vascular dementia with Alzheimer’s disease. The treatment is focused to prevent further worsening of symptoms of vascular dementia by treating the underlying conditions such as hypertension, hyperlipidemia, CVD and diabetes mellitus. Antiplaetelet agents may be used. Patients may also benefit from physiotherapy, occupational therapy and speech therapy if required. Treatment of depression, if present, is also useful. A significant number of patients may have coexisting vascular dementia and Alzheimer’s disease, called mixed dementia. No cholinesterase inhibitors are currently approved for the treatment of vascular dementia. Prevention of vascular dementia should be aimed by control of vascular risk factors, healthy diet, exercising, not smoking and maintaining a healthy body weight.

Answered by: Dr. Abdul Qayyum Rana
Experts on Call

4. Atypical Antipsychotics for Patients with Borderline Personality Disorders

Can atypical neuroleptics help one adjust to psychotherapy?
Submitted by: Paul Steinberg, MD, Vancouver, British Columbia

Acutely psychotic patients and those experiencing intense agitation and anger, as it happens with patients with borderline personality during a crisis situation, are obviously not receptive to any form of psychotherapy, including supportive psychotherapy. Atypical neuroleptics are indicated in those patients to resolve the psychosis and/or reduce the psychic agitation. As a result of this pharmacological treatment, the patient may become more receptive to psychotherapy including supportive psychotherapy and the dialectical behaviour therapy which is a special form of psychotherapy indicated for borderline patients.

Answered by: Dr. Hany Bissada

5. Link Between Weather and Arthritis Pain

Is there really a link between weather and arthritis pain or is this because bad weather makes patients center more on their pain?
Submitted by: Nicolas Boudreault, MD, Lac-Etchemin, Quebec

There is an association between weather patterns and pain in certain joint diseases. In one study, high humidity and low temperature were associated with increases in pain in patients with rheumatoid arthritis and osteoarthritis, but not in control patients. The cause of this phenomenon is not clear. It is possible that atmospheric differences affect the pressure within damaged joints, affect inflammation, or alter pain perception.

Resource

Answered by: Dr. Emil Nashi and Dr. Michael Starr
When to Use Antibiotics to Treat Otitis Media

When should antibiotics be used to treat otitis media?

Submitted by: Charles Lynde, MD, Markham, Ontario

First of all, it is crucial to clearly define the terminology of otitis media. We are distinguishing between acute and chronic otitis media. Primarily, patients with acute otitis media should immediately be treated with antibiotics for 10 to 14 days. The rationale for using antibiotics in patients with acute otitis media is that in 80% bacterial strains, H. influenzae, S. pneumoniae and M. catarrhalis are found in the fluid of the middle ear. Adjunctive medical therapy for acute otitis media includes decongestants, antihistamines and NSAIDs.

The choice of antibiotics for the treatment of otitis media should take into consideration the drug's in vitro activity against the locally prevalent organisms and associated antibiotic resistance. Particularly, β-lactamase-producing strains of H. influenzae are currently being isolated in 40% to 50% of cases of acute otitis media. It should also have a convenient dosing schedule, produce minimal side-effects, be cost-effective and taste good. Therefore, amoxicillin-clavulanic (50 mg/kg q.d. to 90 mg/kg q.d.) remains the antibiotic of first choice. In case of treatment failure, cephalosporins like cefuroxime (adults: 750 mg to 1.5 g IV q.8.h.), cefpodoxime (200 mg q.d. to 800 mg q.d.) and intramuscular ceftriaxone (1 g q.d. to 2 g q.d.) are suggested second-line choices. Studies show that the use of antimicrobial agents in patients with acute otitis media decrease the period of disease and the rate of complications related to acute otitis media.

Answered by: Dr. Jonathan Irish and Dr. Boban Erovic
Experts on Call

Secondary Screening Techniques for Coronary Artery Disease

How available or practical are secondary prevention/screening techniques for coronary artery disease (CAD) (e.g., coronary CT calcium score, carotid intima-media thickness measures, etc.)?

Submitted by: Anonymous

The main reason we want to identify asymptomatic patients with CAD is to recommend secondary prevention strategies. We can make a general recommendation for smoking cessation and regular aerobic exercise. The Framingham risk score, especially if combined with high sensitivity C-reactive protein (Reynolds score), can help you determine what the optimal LDL-C level is in an individual patient without known CAD and whether statin therapy should be instituted.

A stress test has a relatively low sensitivity (70%) and specificity (80%) for diagnosis of CAD. However, it is the test recommended by most professional organizations as a screening tool for CAD in asymptomatic populations (e.g., diabetics, middle-aged patients starting an exercise program, public safety occupations with high levels of CV performance) as it is a safe test which has considerable prognostic value. A MIBI scan provides a functional assessment for ischemia and predicts prognosis but a patient could have severe triple vessel CAD and have a normal MIBI scan if there are adequate collaterals. Carotid intima-media thickness is primarily used as a surrogate end point for vascular disease progression in clinical trials and research labs.

The coronary CT calcium score is widely available in private laboratories in Canada and may be part of an executive health examination to screen test for CAD. The calcium score may be useful in patients who are in the intermediate risk category (10% to 20% 10-year risk of vascular event) and may provide additional information that can be used in decision-making about implementing cholesterol-lowering therapy and ASA. However, evidence is lacking that coronary CT calcium score is useful in changing patient behaviour or that therapy based on calcium score results modifies outcomes.

In certain patients, more specific evidence of CAD may be desirable. For example, a competitive runner > 45-years-of-age may be screened for CAD with coronary CT angiography every five years or so. Coronary CT angiography is an accurate non-invasive technique to assess for significant CAD. If the athlete is found to have CAD, competitive running could not be recommended. Because of concern regarding cumulative radiation effects, use of CT scanning should be limited to patients in whom management will change depending on the result.

References

Answered by: Dr. Bibiana Cujec
In MDD,* do you compromise tolerability for efficacy?  
Or do you aim for both?

Answered by: Dr. Ally Prebtani

*D.M.  major depressive disorder

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9. Blood Type After Allogeneic Bone Marrow Transplant

Why does blood type not change immediately after an allogeneic bone marrow transplant (i.e., donor type O, recipient type B, now one year post cord blood transplant for leukemia)?

Submitted by: Michele Burns, MD, Calgary, Alberta

After a standard myeloablative bone marrow or peripheral blood stem cell transplant, full recipient engraftment occurs about two to three weeks after donor stem cell infusion. At this point, new red blood cells are from the donor graft and therefore are of donor ABO blood type. There are some exceptions to this scenario. Patients treated with a reduced intensity conditioning regimens (also known as non-myeloablative transplant or “mini” transplant) can sometimes still have some recipient origin bone marrow remaining along with the donor marrow (also called mixed “chimeric” state). As a result, some of the red cells are produced by the donor and some by the host. In the case of a cord blood transplant, engraftment is often delayed by many weeks as the stem cell dose is usually much lower and the cord stem cells are less immunocompetent. These patients will tend to exist in a state of prolonged donor/recipient chimerism until the donor graft eventually takes over (unless the graft is rejected). This state of mixed chimerism usually lasts for a few months but has lasted for years in some cases.

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

10. Approach to Transient Paresthesia

What approach should I take with a patient who has transient paresthesia?

Submitted by: Anonymous

Transient paresthesia may be due to many different reasons. Good history taking becomes important in these patients. Most often these patients have peripheral nervous system involvement. Some of the common causes may include peripheral polyneuropathy in which case symptoms mostly start in lower extremities, carpal tunnel syndrome and ulnar nerve entrapment in which case paresthesia are in the upper limbs. However, patients with radiculopathy, spinal stenosis, degenerative disc disease, hyperventilation syndrome, paraneoplastic conditions and central nervous system disorders such as migraine and transient ischemic attack may cause transient paresthesias as well.

Answered by: Dr. Abdul Qayyum Rana
Dark Nails

What is the differential in a young girl with dark nails and who has tested positive for lupus?

Submitted by: Nafisa Aptekar, MD, Brampton, Ontario

The differential in this case requires further information about this patient. It is necessary to know if this girl is a person with skin of colour. As well, I would need to know if this girl has met the criteria for systemic lupus erythematosus (four out of 11 criteria) or only has a positive antinuclear factor. Finally I would need to know what drugs she takes especially if she has been treated with antimalarial drugs such as chloroquine or hydroxychloroquine for lupus.

What is really being asked is what is the differential diagnosis of melanonychia which is defined as a brown or black pigmentation of the nail plate caused by the presence of melanin. Melanonychia most commonly presents as longitudinal melanonychia but can less commonly be total or transverse.

In this girl, considerations include “racial” melanonychia which is common in patients with skin of colour. Other considerations are drug-induced melanonychia, postinflammatory melanonychia and less commonly onychomycosis and systemic diseases such as Addison’s disease. Although very rare, melanonychia has been reported due to systemic lupus erythematosus. Most commonly, this has been reported to present with diffuse blue-black nail pigmentation but there have also been rare reports of longitudinal melanonychia attributed to nail matrix involvement with systemic lupus erythematosus.

Resources

Answered by: Dr. Richard Haber

In MDD,* reaching the therapeutic dose is important.

But do you aim for it right from the start?

*Majors depressive disorder

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12. **Avian Flu**

**What are the risks of avian flu for a patient who travels to Asian countries?**

Submitted by: Minh Nguyen, MD, Montreal, Quebec

Although Avian influenza garnered a great deal of media attention several years ago, our attention has now focused on Influenza A H1N1. Avian influenza can affect all species of birds, however, it may also, albeit rarely, infect mammals. The Public Health Agency of Canada’s website about Avian influenza (http://www.phac-aspc.gc.ca/influenza/avian-eng.php) provides all of the most current information about Avian influenza. Infection with humans with the Avian influenza virus (Influenza A H5N1) may occur in humans as a result of contact with any of the following: infected poultry, under-/uncooked poultry products, infected birds (wild or domestic), bird manure containing high concentration of virus and contact with contaminated equipment, clothing and footwear which has been in contact with infected poultry or birds. Infection occurs by direct contamination of the mucosal surfaces by the virus. Although humans are at risk of acquiring influenza, those risks can be minimized by avoidance of any situation in which a human would come in contact with the virus, specifically those outlined above. In reality, the risks of acquiring Avian influenza at this time are low given heightened awareness and measures which can be taken to prevent exposure.

Answered by: Dr. John M. Embil

13. **Risk for Breast Cancer with a Progestin Only Pill**

**What is the risk for breast cancer with a progestin only pill?**

Submitted by: Peter Lee, MD, Abercrombie, Nova Scotia

Some epidemiological studies of OC users have reported an increased risk of developing breast cancer. These studies have predominantly involved combined (estrogen and progesterone) contraceptives and there is insufficient data to determine whether the use of progesterone only pills similarly increases the risk. The product monograph has the same warning and contraindication as combined products due to the lack of specific data on progestin only pills. A meta-analysis of 54 studies found a small increase in the frequency of breast cancer being diagnosed for the women who were currently using combined contraceptives or had used them in the past 10 years. After 10 years after discontinuing combined contraceptive, there is no longer an increased risk.

Resource


Answered by: Dr. Victoria Davis
What is the neurochemistry for appetite control?

Submitted by: Anonymous

The exact neurochemical mechanism of appetite control is unknown. Both central and peripheral nervous systems modulate neurochemical pathways of appetite control. The metabolic effects of ingested nutrients have a partial role in control of appetite. The ingested nutrients may affect the synthesis of neurotransmitters which may influence the feeding behaviour.

In addition, there are two other mechanisms by which neurotransmitters may play a role in appetite control. The release of neurotransmitters may not only affect the activity but also the synthesis of an appetite-controlling detector of nutrient status. However, a neurotransmitter in the synapse controlling feeding may have a specific role in the appetite control system and still may not affect the nutrient detection and neither be functionally affected by the diet. Peripheral nervous system may also play a partial role in the appetite control mechanism. There is some electrophysiological evidence of nerve terminals of the autonomic innervation of the liver that act as chemical receptors to exert significant influence on the control of normal feeding mechanism.

Some control of feeding is learnt in early life in both humans and other mammals as many of the flavours and textures of nutritious foods become appetizing only after learning from experience of the after effects of feeding. In addition, the food is not the only factor in eliciting the appetite but the time of day, habits, rituals, situations satisfying the need and the sensations felt when an individual needs nutrients become important factors in the appetizing situation leading to the intake of appropriate nutrients in sufficient amounts.

Resource

Answered by: Dr. Abdul Qayyum Rana
Experts on Call

15. **Sickle Cell Trait**

**Does the sickle cell trait affect Hgb A1C interpretation?**

Submitted by: Jessica Shintani, MD, Vancouver, British Columbia

The glycedated hemoglobin (hemoglobin A1c) measures the amount of glucose bound to hemoglobin within erythrocytes. The erythrocyte life span is approximately 120 days therefore the HbA1C reflects the mean blood glucose level for that period of time. This test has been widely incorporated into the diagnosis and monitoring of diabetes mellitus. The assay is performed by various methods and some of these are affected by variant hemoglobins such as hemoglobin S trait or hemoglobin C trait. These two variants can falsely elevate the hemoglobin A1c as much as 2%, which may be sufficient to spuriously change interpretation from adequate to inadequate blood glucose control. It is therefore important to be familiar with the type of HbA1c assay used by your lab when interpreting results in patients with known variant hemoglobins. A full listing of various HbA1c assays that are affected by variant hemoglobins can be found at: http://www.ngsp.org/prog/index2.html. Physicians should also consider testing patients with the appropriate ethnic backgrounds (using a hemoglobin electrophoresis) before interpreting results of a HbA1c test.

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

16. **Indications for Psychoanalysis**

**What are the indications for psychoanalysis?**

Submitted by: Paul Steinberg, MD, Vancouver, British Columbia

Conditions considered amenable to psychoanalysis include certain anxiety disorders, highly perfectionistic depressed individuals, some sexual disorders, certain personality disorders, including obsessive-compulsive, histrionic, avoidant and narcissistic, selected patients at the upper end of the spectrum of borderline personality disorder, self-defeating personality disorder and many cases of mixed personality disorder. In addition, many patients who do not fit the Fourth Edition of Diagnostic and Statistical Manual of Mental Disorder (DSM-IV) categories may experience significant distress and frequently seek psychoanalytic treatment. Common problems that bring such individuals to analysis include difficulties with intimacy, relatedness and commitment, lack of assertiveness, avoidant tendencies, self-defeating behaviour, problems with authority, shyness, unresolved grief, or problems related to separation or rejection.

Answered by: Dr. Hany Bissada
Coronary CT angiography is becoming available in most Canadian urban centres. This is a sensitive and specific test for the detection of coronary artery disease (CAD). The radiation dose is higher than with coronary angiography and the amount of contrast is equivalent (similar concern in patients with renal insufficiency). In addition, the patient must have a regular rhythm with a heart rate of 60 bpm to 70 bpm (β-blocker is often required) and be able to hold their breath for 15 to 20 seconds. Heavily calcified lesions and stents are difficult to accurately assess and lower the specificity of CT angiography. The advantages are that coronary CT angiography is non-invasive and requires only a few minutes to acquire detailed images of the coronary arteries. CT angiography has a high sensitivity (>90%) and specificity (>85%) for the detection of significant CAD. In addition, the thoracic aorta and the pulmonary arteries can be assessed to exclude aortic dissection and pulmonary embolism in patients with chest pain.

Indications for coronary CT angiography are evolving. I would recommend considering this test in:

1. Patients with suspected congenital abnormalities of coronary arteries (e.g., in a young patient with exertional chest pain)
2. Patients < 60-years-of-age without any symptoms of CAD who are undergoing valvular surgery in order to screen for CAD (instead of coronary angiography)
3. Patients with left bundle branch block and chest pain in whom dobutamine echocardiography and myocardial perfusion imaging may be equivocal
4. Patients with heart failure and some vascular risk factors to screen for significant CAD
5. Patients with suspected false positive or equivocal stress ECHO or MIBI scans

If the patient is strongly suspected to have significant CAD (presentation with acute coronary syndrome, typical angina, or positive stress test), coronary CT angiography is not indicated. The patient should have coronary angiography with a view to either percutaneous or surgical revascularization.

Of note, CT angiography does not provide a functional assessment of the CAD (i.e., presence of ischemia) and I generally prefer a stress test (with or without imaging) to assess a patient with chest pain. The radiation associated with coronary CT angiography is of concern and this test should not be repeated on a frequent basis for screening or with every ER presentation of a patient with a chest complaint.

Resource

Answered by: Dr. Bibiana Cujec
tTG antibody testing is not reliable if patients are on a gluten-free diet. The serologic testing measures IgA antibodies which the body produces against tTG, a ubiquitous intracellular enzyme produced in celiac patients in response to gliadin, a wheat storage protein. The resultant inflammation causes the characteristic pathologic lesions in the small bowel mucosa and subsequently the phenotypes associated with the disease.

Once gluten and therefore gliadin is removed from the diet, IgA-tTG levels fall, typically within one to four months. The mucosal lesions lag behind this and may persist for up to a year post-gluten’s dietary expulsion. Hence, a patient on a gluten-free diet may have a negative IgA-tTG, due to successful treatment via gluten avoidance. Patients should be maintained on a gluten-rich diet for two to 12 weeks prior to both serologic testing and mucosal biopsy to avoid diagnostic confusion.

Anti-tTG antibodies are an excellent diagnostic tool, in the context of a gluten-rich diet, providing a 95% to 99% sensitivity and 90% to 94% specificity. However, biopsy is still the gold standard for diagnosis and tissue diagnosis should always be pursued once a positive level is obtained or possibly in the context of a negative level if clinical suspicion is high.

Answered by: B. P. Halloran and Dr. Robert J. Bailey
19. Treatment of TB

What is the treatment of a TB infection?
Submitted by: David Hawkins, MD, Kelowna, British Columbia

The World Health Organization estimates that one-third of the world's population is infected with TB. TB incidence is lower in Canada than the developing world, but remains an important, reportable, communicable disease. The goal of TB treatment is to clinically improve the infected individual, prevent relapse, prevent drug resistance and prevent TB transmission. Multi-drug treatment regimens of active TB are complex and depend upon a number of factors including probability of TB drug resistance, feasibility relating to adherence and duration of therapy, drug side-effects, drug-drug interactions, body site infected and comorbidities. Treatment of active TB is best undertaken by healthcare professionals with an expertise in TB management with support of local public health authorities. Individuals wanting to learn more about TB management could read Canadian Tuberculosis Standards, 6th Edition. 2007. Long R and Ellis E., Eds. Minister of Health.

The decision to treat latent TB infection, detected by either tuberculin skin test or a blood test (interferon-γ release assay), should be individualized based upon the likelihood of developing active TB. First-line therapy for latent TB infection is usually isoniazid (INH) for nine months. Alternative regimens are possible, particularly in individuals who cannot tolerate INH, nine-month duration is not feasible, or INH resistance is suspected.

Answered by: Dr. Paul Hernandez

20. Skin Abrasions

Should all skin abrasions be covered immediately after cleaning to prevent infection? Many doctors recommend leaving wounds open to dry out.
Submitted by: Mitch Rubin, MD, Vancouver, British Columbia

Skin abrasions should be covered not to prevent infection but to promote faster healing. The idea to leave wounds open to the air to heal is an old one that has been superseded by the promotion of the concept of moist wound healing. Multiple studies have shown that enhanced wound reepithelialization occurs under occlusive dressings. Moisture retentive dressings have been shown to provide an optimal environment to accelerate healing by promoting tissue growth. Concerns that occluding a wound would lead to infection have been found to be incorrect.

In the case of skin abrasions, treatment with a film such as Opsite™ or Tegaderm™ or a hydrocolloid dressing would be helpful in promoting faster wound healing without promoting infection of the wound.

Answered by: Dr. Richard Haber