Answers to your questions from our medical experts

1. Therapeutic Approach to Extensive Infantile Seborrhea

What is the best therapeutic approach for extensive infantile seborrhea?

Submitted by: Mohamed I. Ravalia, MD, Twillingate, Newfoundland

Seborrheic dermatitis is a common benign eczema that can be seen in infants. Often seborrheic dermatitis is self-limited and it may not be necessary to treat mild cases or simple measures, such as regular shampooing and applying mineral oil to scaly areas, may suffice. However, if the seborrheic dermatitis is extensive, there are two approaches to treatment.

The first is to use a mild topical corticosteroid such as 1% hydrocortisone cream twice a day to control the dermatitis. This is safe to use and although seborrheic dermatitis may be extensive, it often responds well to mild topical corticosteroids.

The second approach is to use a topical antifungal agent, usually an imidazole, such as 2% ketoconazole shampoo or cream which treats the *Malassezia* yeasts shown to be associated with seborrheic dermatitis in both infants and adults. Controlled trials comparing topical steroids and topical antifungals showed good efficacy of both treatments and no significant difference between them. These trials were comparing adults, however, topical imidazole antifungal agents can be safely used in infants. A trial of topical ketoconazole shampoo for infant seborrheic dermatitis of the scalp, used twice weekly for four weeks, showed no detectable serum ketoconazole levels and no change in liver function tests.

Resource
1. Brodell RT, Patel S, Venglarcik JS, et al: The Safety Of Ketoconazole Shampoo For Infantile Seborrheic Dermatitis. Pediatr Dermatol 1998; 15(5):406-7.

Answered by: Dr. Richard Haber

2. Isolated GGT

What are the causes of an elevation in γ-glutamyl transpeptidase (GGT) alone (other liver function test is normal)?

Submitted by: Claude Roberge, MD, Sherbrooke, Quebec

Liver causes of an isolated GGT include alcohol and drugs (*e.g.*, anticonvulsants and warfarin). But other organs can also produce GGT such as:

- Kidneys
- Spleen
- Pancreas
- Heart
- Lungs
- Brain

Resource
1. Feldman M, Friedman LS, Brandt LJ: Sleisenger and Fordtran's Gastrointestinal and Liver Disease. Eighth Edition. Saunders, 2006. p.1-3112.

Answered by: Dr. Richmond Sy

3. Migraine with Aura and Patent Foramen Ovales

What is the association between migraine with aura (MA) and patent foramen ovales (PFO)?

Submitted by: Janna Bentley, MD, Kelowna, British Columbia

PFO may occur in 20% to 30% of the general population and appears to be associated with MA possibly through cardiac shunting. This was discovered in 1988 when Del Sette, *et al* performed transcranial Dopplers on patients with stroke and migraine. Right to left shunt was found in 16% of controls, 35% of young stroke patients and 41% of patients with MA. Another study found PFO in 22% of subjects with migraine without aura and 48% of patients suffering from MA. Interestingly, scuba divers with large right to left shunts have a higher incidence of migraine after dives and a 47.5% prevalence of migraine.

A number of open label, case-controlled and retrospective studies have shown dramatic reductions in MA following PFO closure. However, the Migraine Intervention With STARFlex Technology (MIST) trial, the only prospective sham controlled study of PFO closure for MA was negative for all primary and secondary measures. The study did confirm an association between MA and severe PFO shunts. Two other studies were discontinued secondary to poor recruitment (MIST II and Effect of Septal Closure of Atrial PFO on Events of Migraine [ESCAPE]). The PREMIUM and PRIMA randomized trials are currently in progress.

Resources
1. Tepper SJ, Sheftell FD, Bigal ME: The Patent Foramen Ovale – Migraine Question. Neurol Sci 2007: 28 Suppl 2:S118-23.
2. Tepper SJ, Cleves C, Taylor FR: Patent Foramen Ovale And Migraine: Association, Causation, And Implications Of Clinical Trials. Curr Pain Headache Rep 2009; 13(3):221-6.

Answered by: Dr. Theodore Wein

4. Bisphosphonate Use with Inhaled Corticosteroids

Are there any recommendations regarding bisphosphonate use with inhaled corticosteroids (ICS)?

Submitted by: Laith Barsoom, MD, Toronto, Ontario

Systemic corticosteroids are known to interfere with normal bone formation resulting in osteoporosis and an increased incidence of fracture. The incidence of osteoporosis and fracture in patients receiving ICS for respiratory disease remains controversial. Systemic effects differ among ICS based on dose, relative potency, delivery device, bioavailability, gut absorption and first pass metabolism in the liver.[1] It is reasonable that individuals with additional risk factors for osteoporosis (*e.g.*, post-menopausal women) that require long-term treatment with ICS have bone density testing to determine if they would benefit from osteoporosis drug prophylaxis (*e.g.*, calcium, vitamin D and bisphosphonate).

Reference
1. Global Strategy for Asthma Management and Prevention. Global Initiative for Asthma. Update 2008: www.ginasthma.org. Accessed: September 12, 2009.

Answered by: Dr. Paul Hernandez

5. MMSE vs. MOCA Screening Tests

Which is the better screening test: Mini-Mental State Examination (MMSE) or Montreal Cognitive Assessment (MOCA)?

Submitted by: Raymond Gatien, MD, Cornwall, Ontario

The MMSE is a 30-point cognitive test developed in the mid-1970s to provide a bedside assessment of a broad array of cognitive functions including orientation, attention, memory, construction and language. It has been extensively studied and shows excellent reliability and very good validity. It is one of the most widely used screening instruments in general medical and geriatric settings as an initial assessment of mental status and can serve, along with a careful history, as an indicator for more precise neuropsychological evaluation. This is particularly true if performance on the MMSE deteriorates over time. Individuals with MMSE scores < 24 may be considered to have a dementia.

The MOCA was designed in the early 2000s as a rapid screening instrument for mild cognitive dysfunction (MCI). It assesses different cognitive domains including:

- attention and concentration,
- executive functions,
- skills,
- conceptual thinking,
- calculations and
- orientation.

The total possible score is 30 points—a score of ≥ 26 is considered normal. Relative to MMSE, it has high sensitivity but low specificity, hence its usefulness in detecting MCI. MOCA was developed by Nasreddine, *et al* who made the following recommendations on its use:

- If the patient has cognitive complaints and functional impairment, then do MMSE first. If MMSE is ≥ 26, then proceed to do MOCA
- If the patient has cognitive complaints but no functional impairment was reported, then that patient may be normal or presenting with MCI, in which case MOCA should be done first to detect or rule out MCI

Resources

1. Nasreddine ZS, Phillips NA, Bédirian V, et al: The Montreal Cognitive Assessment, MOCA: A Brief Screening Tool For Mild Cognitive Impairment. J Am Geriatr Soc 2005; 53(4):695-9.
2. Smith T, Gildeh N, Holmes C: The Montreal Cognitive Assessment: Validity and Utility in A Memory Clinic Setting. Can J Psychiatry 2007; 52(5):329-32.
3. Luis CA, Keegan AP, Mullan M: Cross Validation Of The Montreal Cognitive Assessment In Community Dwelling Older Adults Residing in the Southeastern US. Int J Geriatr Psychiatry 2009; 24(2):197-201.

Answered by: Dr. Hany Bissada

6. Phage Therapy for Bacterial Infections

Please explain phage therapy for bacterial infections.

Submitted by: Lorne Pilot, MD, Saskatoon, Saskatchewan

A bacteriophage is a virus which can attack bacteria. Intuitively, if a virus can attack a bacteria, then it may be of benefit in the treatment of human and animal diseases. Despite extensive research, primarily in the former Soviet Union, this approach is not used in North America. It was initially speculated that phage therapy may provide benefit in the treatment of antibiotic resistant bacteria. The ideal advantage of phage therapy is that a specific virus could be used to target a specific bacteria without the need for antibiotics and the antibiotic related complications. There are potential disadvantages to phage therapy particularly as the long-term human, animal and environmental effects are unknown, specifically, the phages may lead to new mutant bacteria. For the time being, until there are further developments in phage therapy, their use in humans will not be seen in North America.

Answered by: Dr. John Embil

7. Difference Between Ionized and Corrected Calcium

When we order serum calcium, what is the difference between calcium, ionized calcium and correlated calcium?

Submitted by: John Tam, MD, Toronto, Ontario

The serum calcium (or total plasma calcium) is the sum of calcium bound to albumin (40%), anions (15%) and the free ionized calcium (45%).

The ionized calcium is the physiologically active fraction of the total plasma calcium which has the most important clinical implications and is tightly controlled by parathyroid hormone. It is not affected by changes in serum albumin.

The "corrected" calcium is a measure of calcium in correlation to albumin concentration which is an important concept in conditions such as hypoalbuminemia states. It can be calculated using the following equation:

Corrected [Ca] = Measured total [Ca] + (0.2 x (40-[alb])) mmol/L

Practically, when investigating for calcium homeostasis disorders, it is recommended to check the ionized calcium level. The corrected calcium level, however, will remove the effect of conditions that might affect albumin level and subsequently the total calcium concentration.

Resource
1. Bushinsky DA, Monk RD: Electrolyte Quintet: Calcium. Lancet 1998; 352(9124):306-11.

Answered by: Dr. Michael Starr and Dr. Ahmad Al-Enizi

8. New Tests for Deep Vein Thrombosis

Are there any new tests for deep vein thrombosis (DVT)? While D-dimer is useful, there are many false positives.

Submitted by: Valerie Ross, MD, Stillwater Lake, Nova Scotia

The most commonly used test for DVT is compression and Duplex ultrasound of the leg veins. This test is best at detecting proximal DVT which carries a risk of embolization. Impedance plethysmography has been around for many years. This non-invasive test assesses the blood volume (impedance) in the calf when a cuff is deflated in the thigh. If there is venous obstruction, there is delayed outflow. This test is not commonly available but has a high sensitivity and specificity for DVT.

D-dimer is a byproduct of fibrin degradation. It is elevated in patients with pregnancy, infections, malignancy, recent surgery, *etc.* A negative D-dimer is useful in excluding a DVT but a positive test lacks specificity for DVT.

Contrast venography is the traditional gold standard for the diagnosis of DVT but is seldom used as it is painful, invasive and involves a contrast load.

New tests for DVT include CT and MR venography (MRV). Many hospitals perform combined CT of the pulmonary arteries and the subdiaphragmatic deep veins (including the legs) at the same sitting, with no additional contrast dye or venipunctures beyond what is required for a CT pulmonary angiogram. In some reports, CT venography has been as accurate at venous ultrasound however, there may be false positives with a pseudo-filling defect created by layering of flow in the veins. At present, the use of CT in this setting remains experimental, although this combined technique holds promise for the diagnosis of both pulmonary embolism and DVT.

MRV is as accurate as contrast venography for the diagnosis of DVT (sensitivity of 100% and a specificity of 96%). However, it is expensive, not widely available and outcome data are lacking. MRV may be a useful approach when contrast venography is required but precluded because of allergy to contrast material.

Answered by: Dr. Bibiana Cujec

9. Risk of Cytomegalovirus in Pregnancy

What is the risk of cytomegalovirus (CMV) infection in pregnancy?

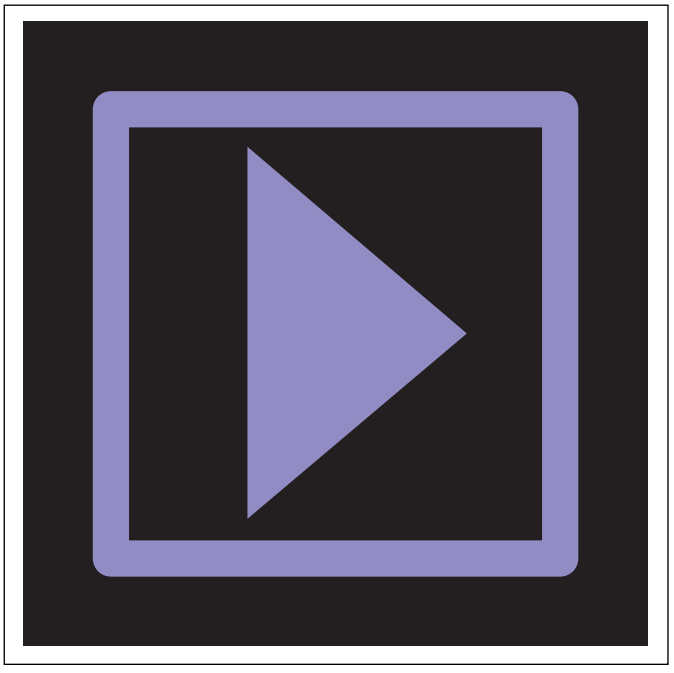
Submitted by: **Stefania Argentin, MD,** Brossard, Quebec

CMV is a member of the herpes virus group and is a common infection with little to no symptoms. Most adults (up to 80%) in North America have acquired a CMV infection and are immune. The virus is shed through body fluids, therefore, good hygiene techniques are the best method of prevention as there is no vaccine and treatment is limited. Congenital CMV infection (approximately one in 150 births) occurs most commonly in women who have their first infection during pregnancy. Permanent disabilities, hearing/vision loss, cognitive impairment, occur in one in 750 live-born children and tend to be more severe in those who have the infection prior to 20 weeks gestation. Women who are planning to or who are pregnant should be tested to determine immune status and all should practice good hand washing techniques, avoid sharing utensils and avoid children's saliva to reduce infection. Testing is also recommended if a fetal anomaly is detected or a mononucleosis-like illness develops in pregnancy.

Resource

1. Dollard SC, Grosse SD, Ross DS: New Estimates Of The Prevalence Of Neurological And Sensory Sequelae And Mortality Associated With Congenital Cytomegalovirus Infection. Rev Med Virol 2007; 17(5):355-63.

Answered by: **Dr. Victoria Davis**



10. Acute Chronic Sinusitis

How is acute chronic sinusitis diagnosed? What treatment is best? How early should it be started after onset of symptoms?

Submitted by: Camille Tittley, MD, Hamilton, Ontario

In general, sinusitis is an inflammation of the paranasal sinuses. Acute sinusitis is defined as inflammation lasting for less than four weeks.

Acute sinusitis is mainly caused by infection (viral, bacterial or fungal) or by anatomical obstruction (hypertrophic nasal mucosa due to inflammation) that lead to an impairment of the sinus drainage.

The most important factor for diagnosis is patients' history (pulsative headache that gets worse when patient bends his head over, purulent rhinorrhea and postnasal drip, nasal obstruction, fever) and careful examination of the patient (anterior and posterior endoscopy).

Clinical evaluation and eventually plain radiography of the paranasal sinuses are adequate for diagnosis and subsequent treatment of acute sinusitis. The treatment should be started once diagnosis is confirmed to avoid complications. The management of acute sinusitis would contain systemic antibiotics, analgetics and antipyretics, saline irrigations and mucolytics. Late treatment may lead to complications like periorbital cellulitis, orbital cellulitis, subperiosteal abscess, orbital abscess and intracranial abscess.

Chronic sinusitis, defined by persistence of the disease for more than six weeks, is divided into patients with and without nasal polyps. Causes may include allergy, dust or pollution, bacterial or fungal infection, anatomical barriers (deviation of septum, allergic rhinitis, nasal masses or foreign bodies, nasal polyposis) or apical dental infection. Rarely trauma, ciliary dysfunction (Kartagener syndrome), immunodeficiency or cystic fibrosis are reasonable for chronic sinusitis. Besides the symptoms of acute sinusitis, patients with chronic sinusitis may suffer from anosmia.

To diagnose chronic sinusitis clinical history and symptoms, nasal endoscopy and a CT scan are essential. The treatment plan for patients with chronic sinusitis includes nasal corticoid sprays twice a day in combination with nasal hypertonic saline irrigations and antihistamines for six to eight weeks. After completion of medical treatment, follow-up should include clinical examination and a CT scan to evaluate response to therapy. If nasal obstructions or nasal polyps persist or when fungal infection is diagnosed, a surgical management by nasal endoscopy is recommended.

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

11. Use of an MRI with Coronary Stents

Can patients with coronary stents have an MRI?

Submitted by: Terry Carscadden, MD, Lively, Ontario

The concern with the use of an MRI is the potential dislodgement of ferromagnetic intracardiac devices (including coronary stents) due to the strong magnetic fields that are generated by MRI. Percutaneous coronary interventions often involve the placement of an intracoronary stent. These stents are either bare metal stents (BMS) or drug eluting stents (DES). Most of these stents are composed of stainless steel or nitinol and most are considered non-ferromagnetic or weakly ferromagnetic, which means they should not dislodge.

Other risks of an MRI include device heating or device malfunction. To date, most studies suggest it is safe to undergo an MRI after stent implantation with a BMS or DES, though the effect of radiofrequency emission on heating the DES is not thoroughly evaluated. Good clinical practice dictates that a physician and the patient with intracoronary stents should communicate with the radiology department prior to undergoing an MRI. Individual risk assessments for each patient with stents should be performed based on the underlying CV condition, the type of intracoronary stent and the urgency of the MRI.[1]

Reference
1. Gerber TC, Fasseas P, Lennon RJ, et al: Clinical Safety of Magnetic Resonance Imaging Early After Coronary Artery Stent Placement J Am Coll Cardiol 2003; 42(7):1295-8.

Answered by: Dr. Richard Sheppard

12. Herpes Zoster Without Visible Rash

Can herpes zoster be diagnosed without any visible rash?

Submitted by: Petrus Van Der Walt, MD, Cold Lake, Alberta

Herpes zoster (shingles) is a reactivation of the varicella zoster (chicken pox) virus. The typical presentation is a prodrome of tingling, burning or aching in a dermatome, followed by the typical cluster of clear vesicles. The pain of shingles may mimic a variety of different conditions and therefore, without the characteristic skin rash, the diagnosis is often difficult to establish. The only serology that is available is for detecting the past history of exposure to chicken pox virus and therefore, of limited value in establishing the diagnosis.

Answered by: Dr. John Embil

13. Treating Hypertension in Pregnancy

What is the best treatment for hypertension in pregnancy?

Submitted by: Wendy Rosenthall, MD, Mississauga, Ontario

Hypertension is the most common medical disorder of pregnancy and is classified into four categories:

- Chronic hypertension
- Preeclampsia-eclampsia
- Preeclampsia superimposed on chronic hypertension
- Gestational hypertension (transient hypertension of pregnancy or chronic hypertension identified in the latter half of pregnancy)

When hypertension is first identified in pregnancy at < 20 weeks gestation, this usually represents chronic hypertension. In contrast, new onset of hypertension after 20 weeks mandates exclusion of preeclampsia. Hypertensive disorders in pregnancy may cause maternal and fetal morbidity and remain a leading source of maternal mortality.

ACE inhibitors and ARBs should be avoided in pregnancy, as they are associated with fetal renal dysgenesis or death when used in the second and third trimesters. Diuretics do not cause fetal malformations but are generally avoided because they prevent the physiologic volume expansion seen in normal pregnancy.

Reasonable first-line medication for moderate hypertension (BP 140 to 159/90 to 105 mmHg) is a combined α- and β-adrenergic blocking agent widely used in treating hypertension during pregnancy. The dose for labetalol is 100 mg to 400 mg p.o. b.i.d. to t.i.d. up to 1,200 mg q.d. Alternatives are methyldopa 250 mg to 500 mg p.o. b.i.d. to t.i.d. up to 2 g q.d. and nifedipine 20 mg to 60 mg p.o. o.d.

For severe hypertension (BP ≥ 160/110 mmHg), IV and oral forms of labetalol and nifedipine are used as an alternative to hydralazine. Antihypertensive medication does not prevent preeclampsia. When severe hypertension and preeclampsia/eclampsia exist, this is an obstetrical emergency—the hypertension should be managed followed by consideration for delivery.

Resource

1. Diagnosis, Evaluation And Management of Hypertensive Disorders In Pregnancy. JOGC 2008; 30:3 (Supplement March).

Answered by: Dr. Victoria Davis

14. Poison Ivy Treatment Options

What are the best treatment options for poison ivy?

Submitted by: Lorne Pilot, MD, Saskatoon, Saskatchewan

Poison ivy dermatitis is a classic example of an allergic contact dermatitis, or a delayed-type hypersensitivity to an allergen that comes in contact with the skin. Poison ivy, *Toxicodendron radicans*, is a plant in the same family as poison oak and poison sumac. It produces a resinous sap containing urushiol, the allergen triggering the contact dermatitis.

Ideally, avoidance of the plant is the best strategy. The plant is often easily identified as a woody vine with leaves in groups of three, hence the expression: "Leaves of three, let it be; leaves of four, eat some more."

Assuming a patient comes into contact with poison ivy and presents with the classic acute pruritic eruption of erythematous linear vesicles and bullae, good treatment options are available. If untreated, the lesions and itch can persist for up to one month. Scratching frequently transfers urushiol to different body sites that did not contact the plant originally. With treatment, lesions and itch rarely last beyond two weeks.

Patients can use cool wet compresses for local relief. Super potent topical steroids can be used on acute blistering areas and may be sufficient if the reaction is localized.

Most patients will require a tapering course of systemic corticosteroids starting with 0.75 mg/kg to 1 mg/kg. They should be warned about potential side-effects of corticosteroids, especially ones that are serious and rare such as avascular necrosis of the hip. Treating for five days is often insufficient as new lesions could develop after this period. One option may be prednisone 0.75 mg/kg to 1 mg/kg decreasing by 5 mg every two days until zero.

Patients should avoid other plants in the Anacardiaceae family that can cross-react with poison ivy such as mango trees, cashew trees, Japanese lacquer and ginkgo.

Answered by: Dr. John Kraft and Dr. Charles Lynde

15. Massage and Sensory Peripheral Neuropathy

Does massage have a role in desensitization for sensory peripheral neuropathy caused by vincristine?

Submitted by: Maury O'Neil, MD, Collingwood, Ontario

Vincristine is a vinca alkaloid chemotherapeutic agent used for the treatment of solid tumours, lymphoma and leukemia. Pain and small fibre loss predominate early on and occur four to five weeks post treatment. Autonomic dysfunction may also occur early on. Muscle weakness usually recovers rapidly upon discontinuation of drug. Electromyography demonstrates a sensory motor polyneuropathy.[1]

A pubmed search found no articles on massage therapy and neuropathy. Another form of desensitization may be in the form of transcutaneous or percutaneous electrical nerve stimulation which has been shown to have a benefit in painful diabetic neuropathy.[2] Another alternative treatment would be acupuncture.[3] The Canadian Pain Society has published guidelines for the treatment of chronic neuropathic pain.[4]

References
1. London Z, Albers JW: Toxic Neuropathies Associated With Pharmaceutic And Industrial Agents. Neurol Clin 2007; 25(1):257-76.
2. Hamza MA, White PF, Craig WF, et al: Percutaneous Electrical Stimulation: A Novel Analgesic Therapy For Diabetic Neuropathic Pain. Diabetes Care 2000; 23(3):365-70.
3. Veves A, Backonja M, Malik RA: Painful Diabetic Neuropathy: Epidemiology, Natural History And Treatment Options. Pain Med 2008; 9(6):660-74.
4. Moulin DE, Clark AJ, Gilron I, et al: Pharmacological Management Of Chronic Neuropathic Pain. Consensus Statement And Guidelines From The Canadian Pain Society. Pain Res Manag 2007; 12(1):13-21.

Answered by: Dr. Theodore Wein

16. Asymptomatic High BP Patients Without Clinical Risk Factors

What is now recommended as the basic investigation for asymptomatic high BP patients without any clinical risk factors? Is the ECG still valuable?

Submitted by: Michel Brouldlet, MD, Montreal, Quebec

The Canadian Hypertension Education Program 2009 recommendations include the following laboratory tests for investigation of all patients with newly diagnosed hypertension:

- urinalysis,
- renal panel (potassium, sodium and creatinine),
- fasting glucose and fasting lipid profile and
- ECG.

Urinary albumin excretion should be assessed in patients with diabetes. The ECG remains useful for detecting left ventricular hypertrophy, silent MIs and arrhythmias such as atrial fibrillation which would affect recommendations for therapy.

Resource
1. Canadian Hypertension Education Program: http://hypertension.ca/chep/recommendations-2009. Accessed: July 17, 2009.

Answered by: Dr. Bibiana Cujec

17. Medical Conditions that Present as Depression

What medical conditions may present as depression?

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

Mood disorders due to a general medical condition exhibit the full range of affective pathology and there appears to be no reliable or valid way for a clinician to decide that a depressive condition is due to a specific medical condition. When a mood disorder is first recognized, patients must have a thorough medical evaluation by their primary care physician to rule out an underlying causative medical condition.

It is beyond the scope of this discussion to review all the medical conditions that could present as depression—interested readers are advised to consult the chapter on Consultation-Liaison Psychiatry in any textbook of Psychiatry. Dx

Answered by: Dr. Hany Bissada