KUMARAN

MEDIBYTES 2024

KUMARAN MEDICAL CENTER

YOUR GATEWAY TO WELLNESS

- SPOTLIGHT INTERVIEW
- SUCCESS STORIES
- PHARMACOPEIA
- MEDICAL FACTS AND JOKES
- RECENT ADVANCES

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I feel blessed and privileged to pen on this page and I thank our beloved respected Chairman Dr. Hari Prasad and our family of Kumaran Medical Center for shouldering the responsibility. Stepping into the Sixth year, after completing a five-year Metamorphosis from a crawling Larva to a Flying colorful Butterfly with wings stretched, we celebrate our fifth Anniversary, which has garnered another feather i.e., KUMARAN MEDIBYTES, and is glowing in your hands deciphering our commitment towards patient care and healthcare and our involvement in Academic Contribution.

Again, I wish to your blessings and support towards nurturing our institution.

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Brain and Spine Surgeon

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Cardiologist

Dr. T. S. RAMESH KUMAR
Gastroentrologist

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Anaesthesiologist

Thanking you

"The Critical Role of Early Intervention in Acute Myocardial Infarction Management: A Primer for General Physicians"

Introduction: Acute myocardial infarction (AMI) remains a leading cause of mortality worldwide, underscoring the urgent need for swift and effective intervention. In recent years, the paradigm of AMI management has shifted towards early revascularization, emphasizing the pivotal role of timely intervention in improving patient outcomes. This article aims to elucidate the importance of early intervention in AMI management, highlighting the concept of early revascularization and its short-term and long-term benefits. Additionally, practical guidance on providing initial therapy to AMI patients and facilitating prompt referral to specialized cardiac centers for percutaneous coronary intervention (PCI) is provided.

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The Significance of Early Intervention:

The cornerstone of modern AMI management lies in the principle of "time is muscle." Early recognition and prompt initiation of reperfusion therapy are paramount in salvaging ischemic myocardium and mitigating the extent of myocardial damage. Timely restoration of coronary blood flow not only alleviates symptoms but also preserves left ventricular function and reduces the risk of life-threatening complications such as ventricular arrhythmias and heart failure.

Early Revascularization: Short-term and Long-term Benefits:

Early revascularization, encompassing both primary percutaneous coronary intervention (PPCI) and pharmacoinvasive strategies, has revolutionized the treatment landscape of AMI. PPCI, in particular, offers superior outcomes compared to fibrinolytic therapy, with higher rates of successful reperfusion, lower rates of recurrent ischemia, and reduced mortality. Moreover, PPCI confers additional advantages such as shorter hospital stays, decreased risk of intracranial hemorrhage, and improved long-term survival.

Beyond the immediate benefits, early revascularization exerts a profound impact on long-term prognosis. By preserving viable myocardium and preventing adverse left ventricular remodeling, PPCI attenuates the risk of heart failure and improves overall quality of life. Furthermore, early intervention reduces the likelihood of recurrent ischemic events, including recurrent infarction and unstable angina, thereby enhancing both morbidity and mortality outcomes in the long run.

Initial Management of Acute Myocardial Infarction:

Upon suspicion or confirmation of acute myocardial infarction (MI), immediate action is crucial to mitigate myocardial damage and improve patient outcomes. The initial management involves a multifaceted approach aimed at alleviating symptoms, restoring myocardial perfusion, and preventing further ischemic injury.

1. Confirmation of Diagnosis:

Prompt recognition and confirmation of MI are essential. This involves a thorough clinical assessment, including a detailed history, physical examination, and interpretation of electrocardiographic (ECG) findings and cardiac biomarkers. ST-segment elevation or depression on ECG, along with elevated cardiac troponin levels, typically confirm the diagnosis.

2. Administration of Loading Dose Medications:

Following confirmation of MI, rapid initiation of pharmacotherapy is crucial. Loading doses of medications such as aspirin, P2Y12 inhibitors (e.g., clopidogrel, ticagrelor), anticoagulants (e.g., unfractionated heparin, enoxaparin), and statins should be administered promptly to inhibit platelet aggregation, prevent thrombus formation, and improve coronary blood flow. These loading doses ensure rapid onset of action and maximal antiplatelet effect, particularly in patients undergoing primary percutaneous coronary intervention (PCI).

3. Oxygen Therapy:

Supplemental oxygen should be administered to patients with hypoxemia or respiratory distress to optimize oxygen delivery and alleviate myocardial ischemia. However, routine oxygen therapy is not recommended for normoxic patients, as it may not confer additional benefit and could potentially be harmful.

4. Symptom Relief and Pain Management:

Nitroglycerin, administered sublingually or intravenously, can provide rapid relief of chest pain by promoting coronary vasodilation and reducing myocardial oxygen demand. Morphine sulfate may be considered for pain management in patients with persistent or severe discomfort, although its routine use is no longer advocated due to potential adverse effects and delayed diagnosis of acute coronary syndromes.

5. Adjunctive Therapies:

Beta-blockers, angiotensin-converting enzyme (ACE) inhibitors, and statins are integral components of secondary prevention in MI. While their immediate administration may be deferred until hemodynamic
stability is achieved, these medications should be initiated early in the course of MI to reduce myocardial oxygen demand, improve ventricular remodeling, and optimize lipid profiles.

6. Continuous Monitoring and Hemodynamic Support:

Close monitoring of vital signs, ECG changes, and cardiac biomarkers is essential for assessing treatment response and detecting complications such as arrhythmias, heart failure, or mechanical complications. Hemodynamic support, including intravenous fluids and vasopressors, may be necessary to maintain adequate perfusion pressure and optimize cardiac output in patients with hypotension or cardiogenic shock

Facilitating Timely Referral to Cardiac Centers for PCI:

Efficient triaging and referral of AMI patients to specialized cardiac centers equipped with catheterization laboratory facilities are paramount for expediting revascularization therapy. General physicians should liaise closely with EMS personnel to ensure seamless transfer of patients to designated PCI-capable hospitals.

Upon arrival at the cardiac center, prompt assessment by a multidisciplinary team comprising interventional cardiologists, nurses, and support staff is essential to expedite revascularization. Diagnostic evaluation, including electrocardiography and cardiac biomarker analysis, should be performed expeditiously to guide treatment decisions.

Conclusion:

In conclusion, early intervention is the linchpin of AMI management, offering a multitude of short-termand long-term benefits. General physicians serve as frontline responders in the initial management of AMI patients, necessitating proficiency in initial management and expedited referral to specialized cardiac centers for PCI. By embracing a proactive approach towards early revascularization, we can significantly enhance outcomes and improve the prognosis of AMI patients.

Note: This article serves as a general guideline and does not replace clinical judgment. Individual patient management may vary based on specific clinical scenarios and institutional protocols. The recommendations provided in this section are supported by evidence-based guidelines and consensus statements in the field of cardiology, including those issued by the American College of Cardiology (ACC), the American Heart Association (AHA), and the European Society of Cardiology (ESC)

Medical Facts & Jokes

1. What's the difference between a general practitioner and a specialist?

   One treats what you have, the other thinks you have what he treats.

2. A woman went to the doctor complaining of pain all over her body **"I hurt all over," she said.** **"What do you mean all over?"** the doctor asked, **"Can you be a little more specific?"** The woman touched her right knee with her index finger and yelled, **"Ow, that hurts."** Then her nose and yelled again, **"Ouch! That also hurts."** Then she touched her left earlobe and yelled again, **"Even that hurts doc."**

   After examining her, the doctor concluded that..... **the woman had a broken finger.**

3. Woman on the Phone: My husband accidentally swallowed an Aspirin, what should I do now?

   Doctor: "Give him a headache!" says the doctor

4. At birth, we have over 300 bones. As we grow up, some of the bones begin to fuse as a result an adult has only 206 bones.

   The human skeleton renews once every three months.

   Bones make up only 14% of our body weight.

   The hardest bone in the human body is the jawbone- i.e., Mandible.

   The longest and Strongest Bone in the human body is Femur.

Interesting Case of CHOLESTASIS

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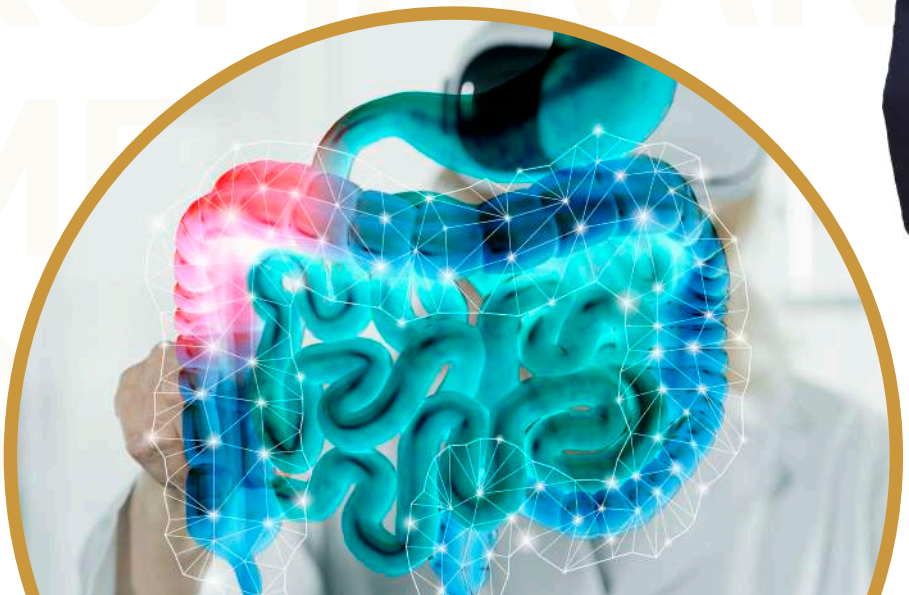
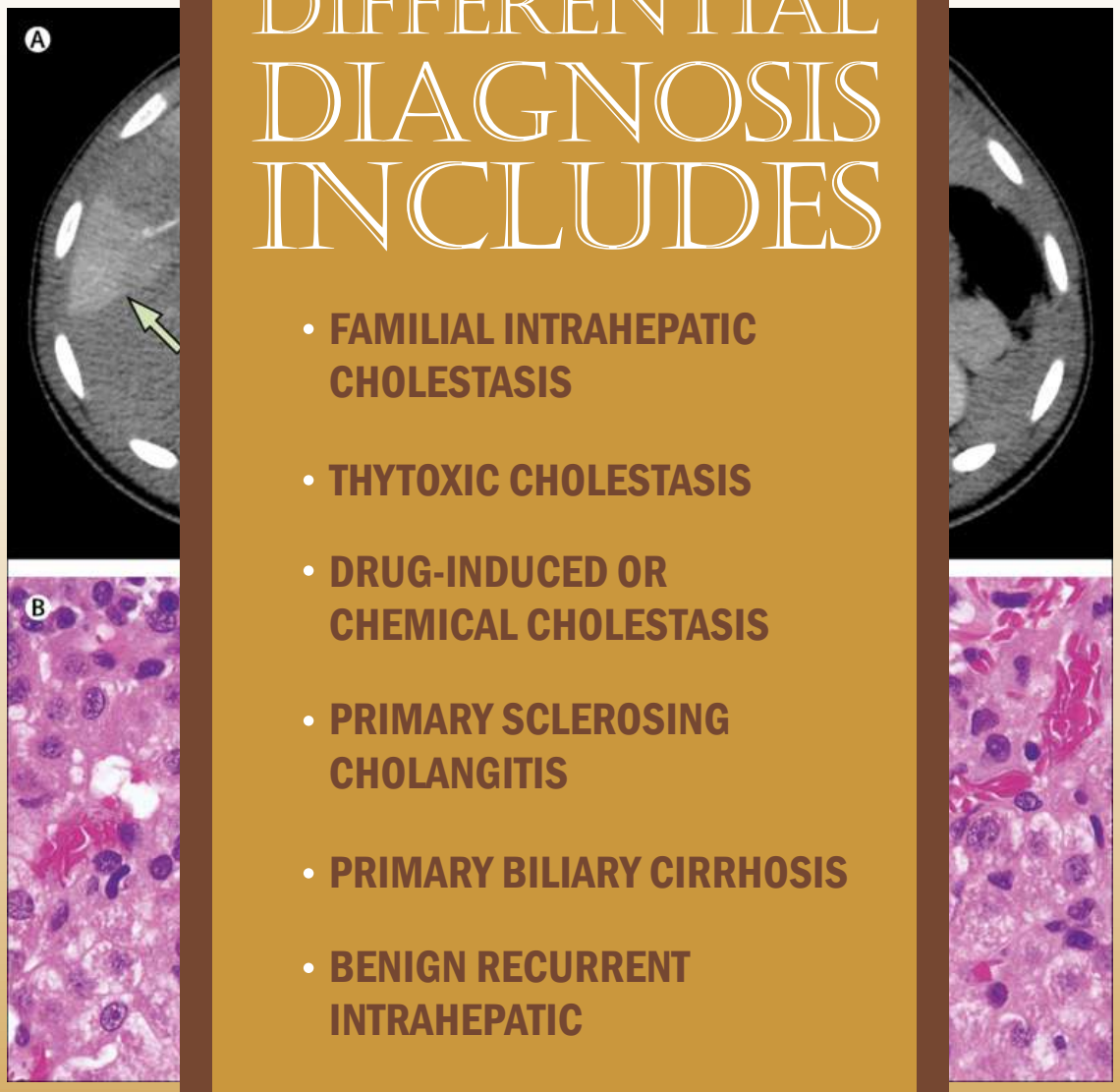
History - A 38-year-old male, a construction laborer, presented with yellowish discoloration of the eyes and urine for the past month which was gradually worsening and associated with pruritis, passing clay-colored stools, and tea-colored urine. He also had dysphoria with heat intolerance and sweating, palpitation, easy fatiguability, and weight loss despite good appetite. But he had no fever or abdominal pain.



Past History - The patient had a similar episode in 2010 and evaluation from a nearby hospital revealed hyperbilirubinemia (bilirubin total-21.6) and moderate hepatomegaly with uniform hypoechoic pattern in the sonogram. The patient was started on supportive treatment with Silymarin and Ursodeoxy Cholic Acid. The patient subsequently improved well with a good appetite and reduced pruritus, and bilirubin became normal, and was back to work.

The patient had a similar episode in 2015 and was evaluated and managed in a similar line of treatment.

Evaluation - With this background, the patient started on support medicines and evaluated with MRCP with CT correlation which revealed a Dilated Main Pancreatic Duct with atrophic gland with calcification in the head and uncinate process with no intraductal calculi. Next, he required a Liver Biopsy which revealed Marked Canalicular Cholestasis With Mild Portal Inflammation And Fibrosis.



DIFFERENTIAL DIAGNOSIS INCLUDES

- FAMILIAL INTRAHEPATIC CHOLESTASIS
- THYTOXIC CHOLESTASIS
- DRUG-INDUCED OR CHEMICAL CHOLESTASIS
- PRIMARY SCLEROSING CHOLANGITIS
- PRIMARY BILIARY CIRRHOSIS
- BENIGN RECURRENT INTRAHEPATIC
- CHOLESTASIS

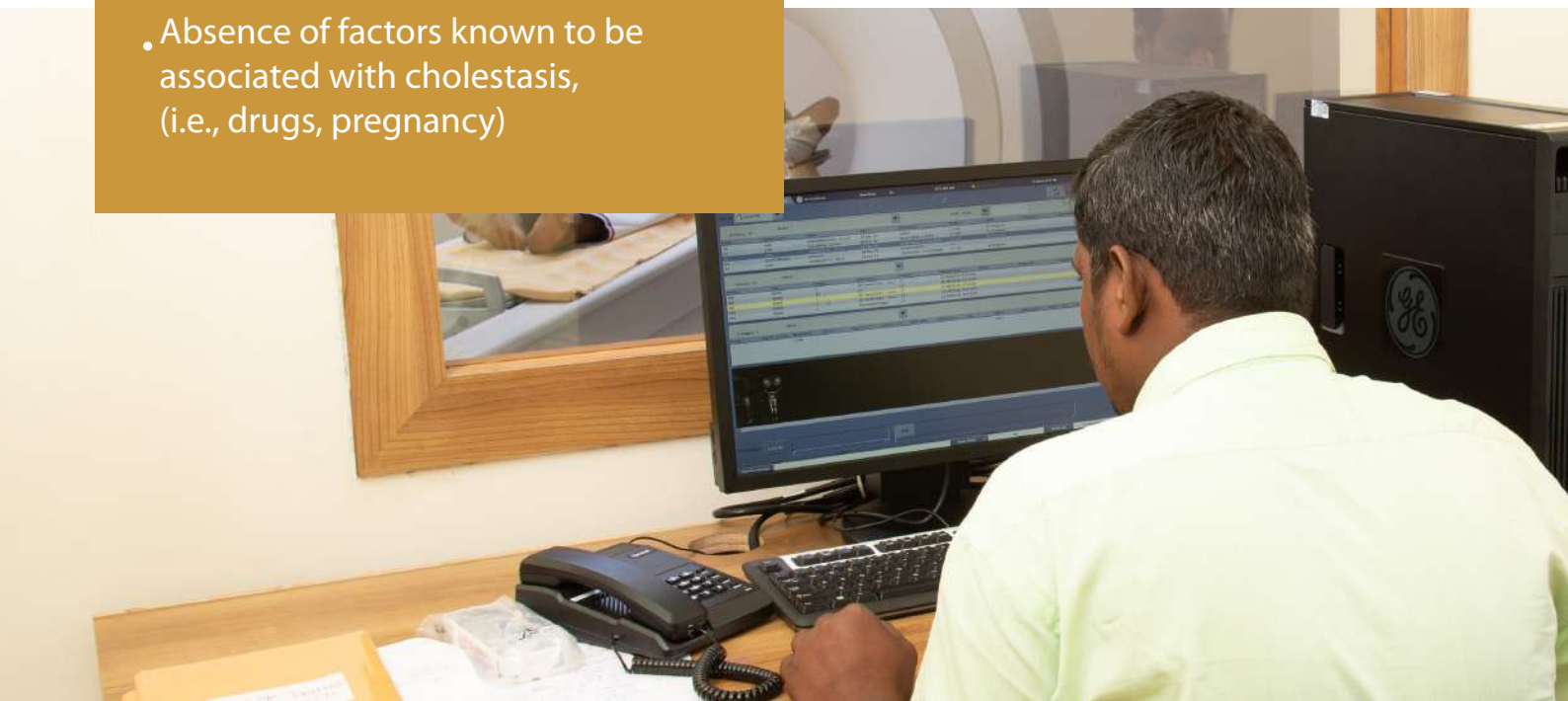
Benign Recurrent Intrahepatic Cholestasis-BRIC syndrome - (Summerskill-Walshe-Tygstrup Syndrome) – first described by Summerskill and Walshe in 1959, is a rare genetic disorder characterized by recurrent episodes of cholestatic jaundice with pruritis. It is a benign, recurrent form of FIC- 1 and 2 (Familial intrahepatic cholestasis).

There are three forms of BRIC, all with similar phenotypes. BRIC manifests early in life, cholestasis is preceded by intense pruritus, and malaise, and lasts for 2 - 24 weeks. Between attacks the patients are healthy. The hallmark of the disease is cholestasis – elevated bilirubin, bile acids, and alkaline phosphatase – with normal GGT.

Diagnostic Criteria for BRIC

- At least 2 episodes of jaundice separated by a symptom-free interval
- Laboratory values were consistent with intrahepatic cholestasis.
- Severe pruritus was secondary to cholestasis.
- Liver histology demonstrating centrilobular cholestasis.
- Normal intrahepatic and extrahepatic bile ducts are confirmed by cholangiography.
- Absence of factors known to be associated with cholestasis, (i.e., drugs, pregnancy)

A return in appetite is often the first sign of resolution followed by pruritus. Jaundice lessens gradually and then resolves through specific treatment that could either prevent or limit the duration of attacks. The key to treatment is therefore relief of severe pruritus and other symptoms until attacks resolve spontaneously. Intractable pruritus responds poorly to antihistamines, cholestyramine, UDCA (Ursodeoxycholic acid), or S-adenosylmethionine and rifampicin. Plasmapheresis / MARS (Molecular Adsorbents Recirculation System) should be considered in refractory cases. Biliary diversion could be more convincing. Liver transplantation can be indicated for intractable pruritus in particular when BRIC progresses to PFIC.



PHARMACOPEIA

Urso Deoxy Cholic Acid (UDCA)- The use of ursodeoxycholic acid (UDCA), also known as ursodiol, in treating liver disease dates back more than a hundred years when it was first employed in traditional Chinese medicine by herbalists and physicians alike. Before discovering its effectiveness in dissolving gallstones, its primary use was as a liver tonic. Today, there is extensive evidence suggesting that UDCA is beneficial in various types of liver pathology. However, the greatest amount of data still points to its therapeutic effect in treating gallstone disease.

Ursodeoxycholic acid (UDCA) is a Secondary bile acid with Cytoprotectant, Immunomodulating, and Choleretic effects. It reduces the cholesterol fraction of biliary lipids. It inhibits the absorption of Cholesterol in the intestine and the Secretion of cholesterol into bile, it Increases bile acid flow and promotes the secretion of bile acids.

INDICATIONS

- **PRIMARY BILIARY CHOLANGITIS (PBC)**
- **PRIMARY SCLEROSING CHOLANGITIS (PSC)**
- **GALLSTONE FORMATION**
- **NON-ALCOHOLIC FATTY LIVER DISEASE**
- **HEPATOCELLULAR INJURY**

Dr. Sasi Kuppusamy

MD., DNB

Family Medicine

MECHANISM OF ACTION

1) CHOLESTROL SOLUBILIZATION: It increases the solubility of cholesterol in bile by replacing more hydrophobic bile acids (chenodeoxycholic acid) with itself, thereby reducing the cholesterol saturation in bile. This helps prevent the precipitation of cholesterol crystals, which are the primary components of gallstones.

2) BILE FLOW IMPROVEMENT: It promotes bile flow by stimulating bile secretion from hepatocytes and enhancing the contractility of bile ducts. This helps prevent bile stasis and reduces the risk of bile duct obstruction, cholestasis, and the formation of bile duct stones.

3) HEPATOPROTECTION: It has cytoprotective effects on hepatocytes by reducing cellular apoptosis and inflammation. It can also modulate immune responses and inhibit the release of pro-inflammatory cytokines, thereby protecting liver cells from injury and damage.

4) ANTICHOLESTATIC EFFECTS: It has been shown to improve liver function and reduce cholestasis (impaired bile flow) in various liver diseases, including primary biliary cholangitis (psc). It can help normalize liver enzymes and bilirubin levels in these conditions.

5) ANTIFIBROTIC EFFECTS: It may have antifibrotic properties, helping to inhibit the progression of liver fibrosis in chronic liver diseases. By reducing fibrosis, UDCA can slow down the progression of liver damage and liver function.

ADVERSE DRUG REACTIONS:

1) GASTROINTESTINAL SYMPTOMS: diarrhea, abdominal discomfort, bloating and nausea

2)ALLERGIC REACTIONS: rash, itching, hives, and difficulty in breathing.

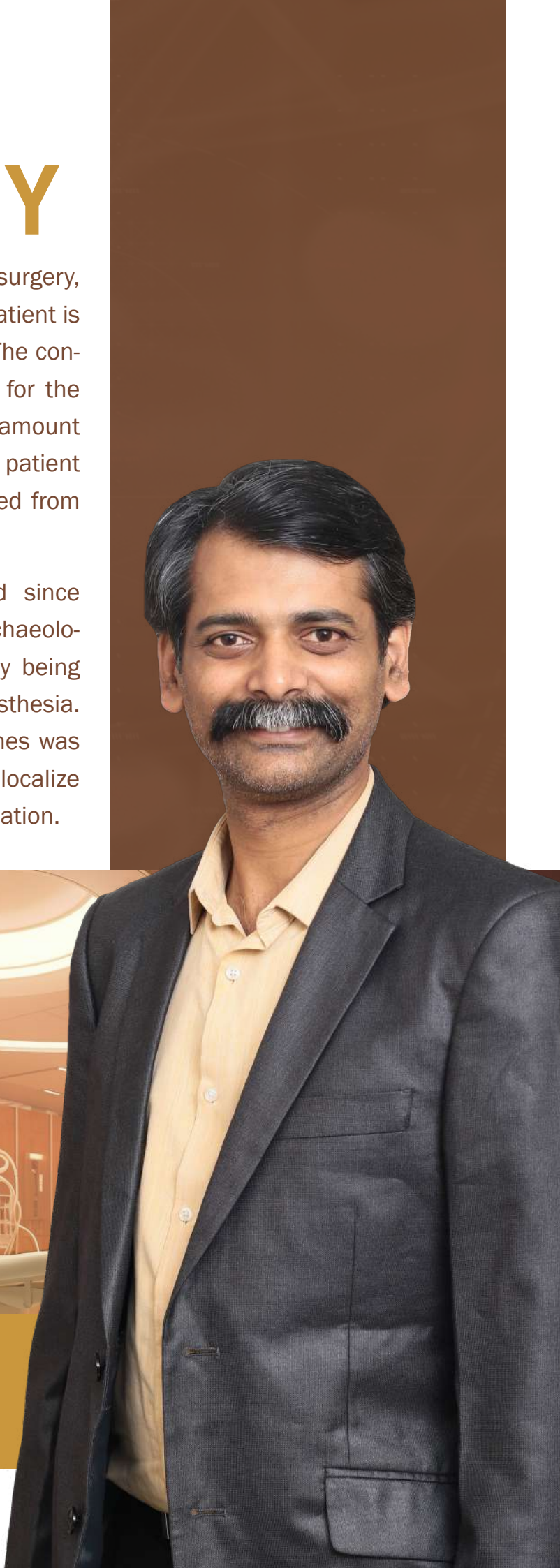
3)OTHERS: hair loss, muscle or joint pain.

CONTRAINDICATIONS: hypersensitivity, patients suffering from blockage of the gall bladder or biliary duct, intestinal ulcers, non-functional gall bladder, had surgery involving any part of the intestine.

AWAKE CRANIOTOMY

Awake craniotomy, also known as awake brain surgery, is a surgery performed on the brain while the patient is awake and able to talk to the operative team. The concept of awake craniotomy may be frightening for the patient, so the role of the operative team is paramount in selecting the proper patient and counsel the patient so that he or she understands what is expected from him or her during surgery.

Awake Brain surgeries have been practiced since ancient times to get rid of “Evil Air” and early archaeological records suggest trephination successfully being practiced long before the advent of general anesthesia. However, Awake craniotomy in Modern Medicines was first performed by Sir Victor Horsley in 1886 to localize the epileptic focus with cortical electrical stimulation.



Dr. S. Shanthanam

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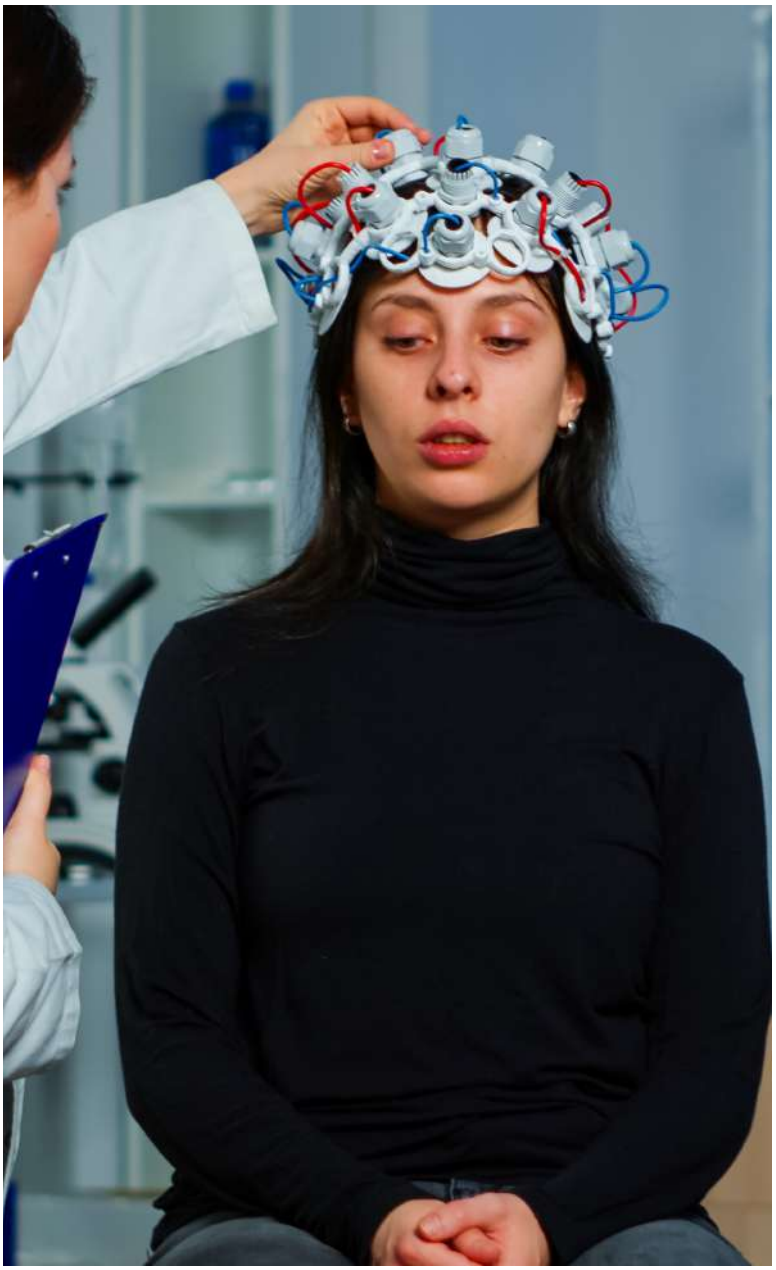
Neurosurgery

The brain is an organ of marvel and miracle. It is the ultimate organ to perceive all touch and pain sensations but by itself does not have touch or pain receptors or nerve fibers. Exploiting this special feature of the brain, which is insensate to touch or pain, the phenomenon of awake brain surgery has grown enormously widening its indications. With advancements in Anesthesiology, the path of awake craniotomy is acceptably comfortable.

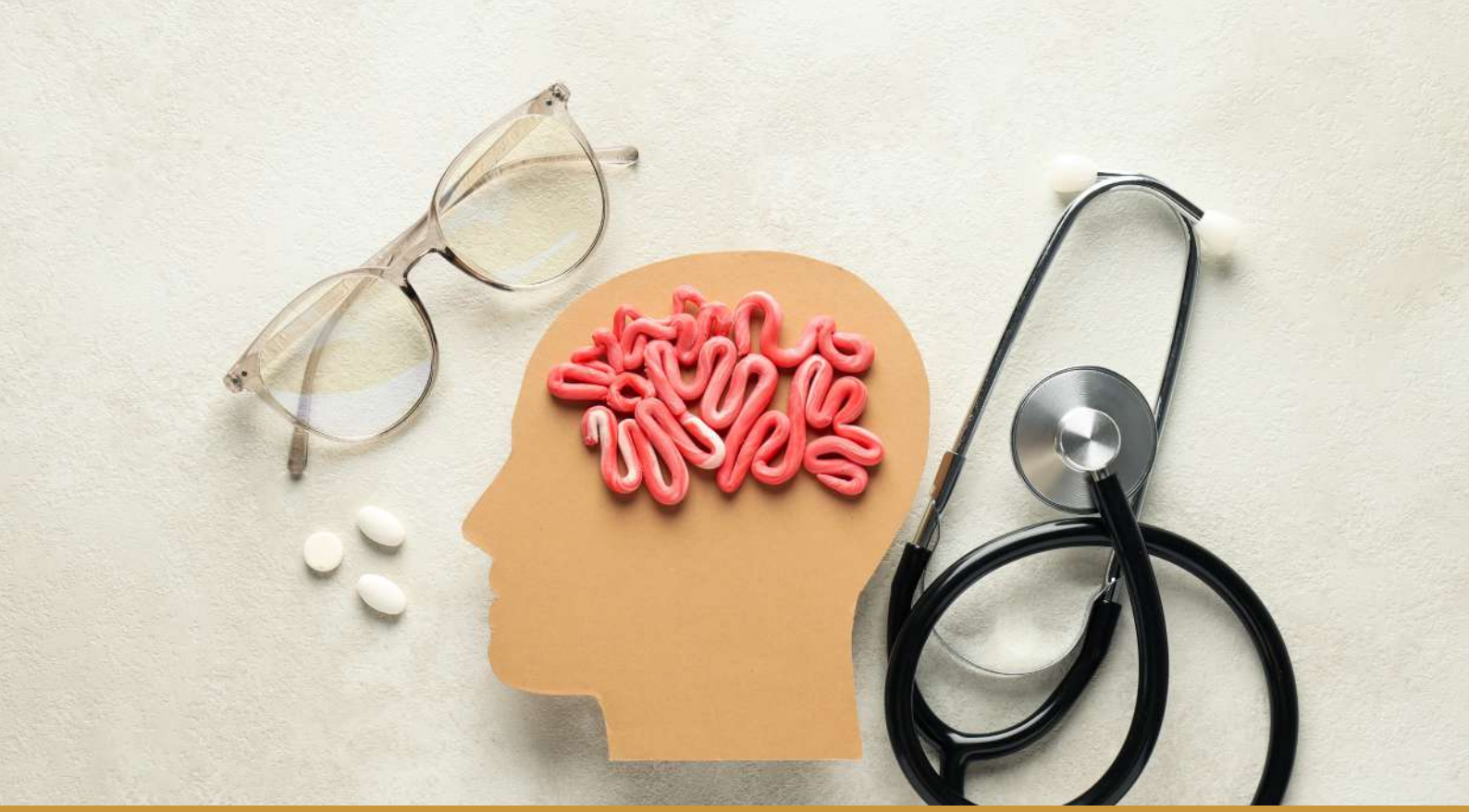
Indications - Initially introduced for Epilepsy Surgery, now widely used in Supratentorial tumors, Arterio-venous malformation, Deep brain stimulation, Mycotic aneurysms near eloquent location etc.,

Absolute contraindication is patient refusal and relative contraindications include Neurological conditions like Dysphasia, confusion, somnolence, cognitive disorders, psychiatric illnesses like Claustrophobia, mood instability, Airway related problems like Uncontrolled coughing, morbid obesity, obstructive sleep apnea and Tumor characteristics like Large and highly vascular tumors, middle or posterior fossa floor lesions, etc.,



The various Anesthesia protocols in Awake craniotomy are 1.Asleep-Awake-Asleep technique- patient anesthetized from skin incision till dural opening, aroused during surgery on the brain, and then again anesthetized during closure, 2.Asleep- Awake technique – where closure is done using local anesthesia or scalp blocks, 3.Monitored Anesthesia Care (MAC) – surgery under controlled sedation, 4. Fully Awake using only scalp blocks – where only local anesthesia and scalp blocks are used.

The most important benefit of awake craniotomy is that it allows maximal tumor resection while preserving neurological function. Other benefits include reduced need for monitoring in the ICU after surgery, fewer neurological deficits (7% vs. 23%) and shorter hospital stays (1.7 vs. 9 days), avoiding the risk inherent to general anesthesia, intubation, and mechanical ventilation, reduced postoperative pain, nausea, and vomiting.



HERE AT KUMARAN MEDICAL CENTER, WE HAVE A COLLECTION OF FOUR PATIENTS WHO HAVE UNDERGONE AWAKE CRANIOTOMY FOR INDICATIONS LIKE LOW-GRADE GLIOMAS AND AV MALFORMATIONS.

The most important challenge in awake craniotomy is the management of agitation of the patient and airway care during surgery hence the success of surgery depends on the Anesthesiology team (50%) and Co operation from patient (50%), but the surgeon enjoys the credit of surgery.

DEPARTMENTS

- ACCIDENT & TRAUMA CARE
- ANAESTHESIOLOGY
- CARDIOLOGY
- CARDIOTHORACIC SURGERY
- DENTAL
- DERMATOLOGY & COSMETOLOGY
- DIABETOLOGY
- ENT AND HEAD & NECK SURGERY
- ENDOSCOPY
- EMERGENCY MEDICINE
- GENERAL & LAPAROSCOPIC SURGERY
- GENERAL MEDICINE
- GASTROENTEROLOGY
- KIDNEY TRANSPLANTATION
- NEPHROLOGY
- NEUROLOGY
- NEURO SURGERY
- OBSTETRICS & GYNAECOLOGY
- ORTHOPAEDIC SURGERY
- PEDIATRICS
- PEDIATRIC SURGERY
- PSYCHIATRY
- PHYSIOTHERAPY
- PLASTIC SURGERY
- PULMONOLOGY
- RADIOLOGY
- UROLOGY
- VASCULAR SURGERY

SERVICES (24X7)

- MRI
- CT
- Advanced CATH Lab
- Dialysis
- ICU
- NICU
- Digital X-Ray
- Ultrasound
- Color Doppler
- Nerve Conduction Study
- Uroflowmetry
- Pulmonary
- Function Test
- Bronchoscopy
- Endoscopy
- Laboratory
- Modular Operation Theater
- Blood Bank
- Modular Labour Suite
- Echo
- TMT
- Audiometry
- ENT Scopy
- Skin Lasers
- EMG
- EEG
- Pharmacy
- Ambulance

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