June 2025 Vol 29 No. 1 ISSN 1681-5552

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the SQUARE Healthcare bulletin

- Dementia
- Dengue
- Endometriosis
- Fatty Liver
- AI in Healthcare
- Royal College Membership

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Test yourself 54

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Contents

Editorial

Dear Doctor,

Welcome to this edition of 'the *SQUARE*'! An initiative dedicated to keeping healthcare professionals informed and stay connected with us.

This issue highlights on several significant challenges and new developement in current medicine. From the growing global burden of 'Dementia' to the persistent threat of 'Dengue'. We present articles that not only for information but also urge proactive strategies for prevention, early diagnosis and management.

We spotlight 'Endometriosis', a condition often underdiagnosed, bringing much-needed attention to its clinical refinement and the importance of patient-centered care. Additionally, we explore the silent yet significant impact of 'Fatty Liver', which can progress from simple fat accumulation to inflammation, fibrosis and eventually cirrhosis or liver failure, emphasizing the critical role of lifestyle and early intervention.

In this age of rapid technological advancement, 'Artificial Intelligence' in healthcare sector emerges as both a tool and a topic of intense dialogue. This issue features an insights into how AI is transforming diagnostics, treatment planning and even medical education.

Furthermore, for those aspiring to global standards of excellence, our feature on 'Royal College Membership' provides valuable guidance on pathways, preparation and potential benefits for career advancement.

As always, we encourage our readers to evaluate their knowledge with the 'Test Yourself' section and perhaps even emerge as our next quiz winner!

We believe that you will find this issue informative and interesting as well. We extend our sincere thanks to our contributors, dedicated readers and always value your comments. May this edition of 'the *SQUARE*' ignite conversations, deepen understanding and reaffirm our shared mission, 'advancing health through knowledge.'

Kind Regards!

Mohammad Atiquzzaman

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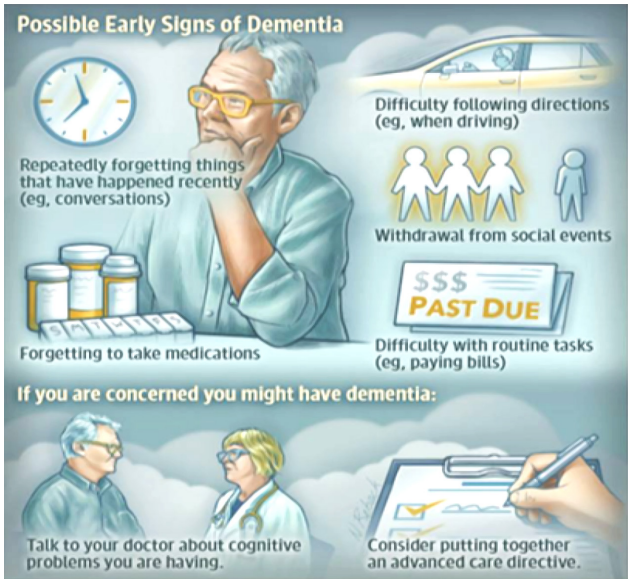
June 2025 VOL 29 NO. 1

ISSN 1681-5552
Key title: the *SQUARE* (Dhaka)
Abbreviated key title: *SQUARE* (Dhaka)

Because the global population is rapidly ageing, dementia has become a concern worldwide. The illness places considerable burden on individuals, their families and also on health and social care provision. Dementia is a medical condition in which there is progressive cognitive impairment occurs compared with several months or years before. The clinical syndrome encompasses difficulties with several types of cognitive abilities, most often with memory, language, attention, orientation, judgement, planning and behavior that lead to impairments in activities of daily living. According to the definition provided by the World Health Organization, dementia is “an umbrella term for several diseases affecting memory, other cognitive abilities and behavior that interfere significantly with the ability to maintain daily living activities”.



Prevalence

Worldwide cases of dementia have increased from 35.6 million in 2010 to 46 million in 2015, around 50 million in 2017, with projections to 82 million in 2030 and 152 million in 2050. At the same time, the rate of occurrence increases significantly with age. This is being attributed to the rising numbers of people with dementia who live in low and middle income countries, where the sharpest increases in numbers is affected.

Risk Factors

Each dementia form has its own risk factors but most dementia types have certain common risk factors. These are:

Age: The biggest risk factor for people aged 60 years or more, especially over 80 years of age (80-85: ~1 in 6 persons; above 85: ~1 in 3 persons; above 90: ~1 in 2 persons). This is a less frequent risk for people younger than 60.

Family history: There is an increased risk for people with a first-degree relative having AD and more so if that relative developed AD at a younger age (less than ~70). There is also a heritable genetic component, apoE4, although in this case only about one-half develop AD by age 90 because of other causative factors.

Other factors: These include: diabetes, hypertension and lifestyle factors (sedentary lifestyle, lack of social connections and mental engagement etc.).

Contributing Diseases

The main contributors to dementia are summarized in Table 2. Other minor contributors are also mentioned here. More than one type of dementia may exist in the same person. Also a small proportion of cases run in families.

Reversible Diseases: There are four main causes of easily reversible dementia:

- Hypothyroidism
- Vitamin B12 deficiency
- Lyme disease and
- Neurosyphilis

Alzheimer Disease (AD): This is the first most common cause of dementia (Table 2), typically presents with short-term memory deficits, manifesting for example as repetitive questioning. About 10% of individuals present with MD, a usual combination of AD and another type of dementia.

Age* ==> % for different populations	65-74	75-84	Over 85
Low-to-middle income	3%	19%	~50%
Developed countries	5%	5%	20-40%
*Slightly higher in women than men at ages 65 and older.			

Table 1: Percentage of Dementia Cases as a Function of Age.

Vascular Dementia (VD): This second most important contributing factor to dementia is due to reduced blood flow to the brain either as a result of clogged blood vessels or fatty deposits within (Table 2). It is more common among people who have had strokes or are at risk for strokes, especially those with longstanding high blood pressure and diabetes. It typically involves a series of minor strokes.

Dementia with Lewy Bodies (DLB): Caused by abnormal proteins (the Lewy bodies) within brain cells, this form of dementia shows symptoms similar to those in Parkinson disease (PD). The primary symptoms are visual hallucinations, attention disorganization, executive functions difficulties, Parkinsonism etc.

Parkinson Disease Dementia: It can occur in the course of PD with very similar symptoms to DLB.

Frontotemporal Dementia (FTD): As its name implies, frontotemporal dementia (FTD) targets two specific brain areas, the frontal and temporal lobes. It is caused by nerve cell loss in the brain and may precede the onset of AD. It manifests itself in three forms: speech impairment and eventually loss, language difficulty and drastic personality change but memory problems are not its main feature.

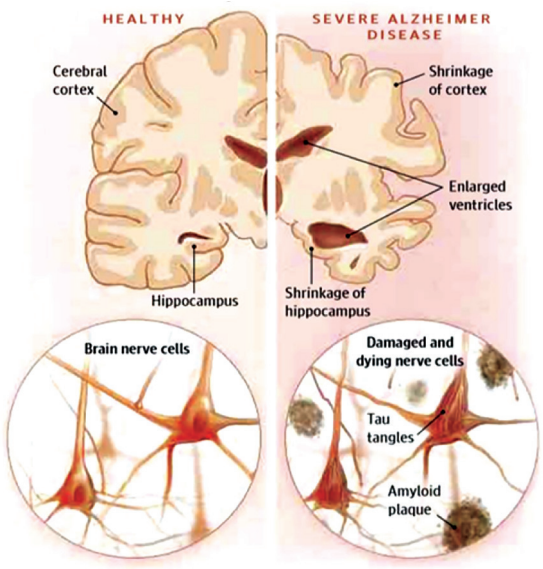
Mixed Dementia (MD): Among persons at more advanced age (especially 85 and greater), there can be more than one cause of dementia, often both AD and vascular damage.

Disease	Contribution (%)
Alzheimer disease (AD)	50-70
Vascular dementia (VD)	20
Lewy body dementia (LBD)	5
Frontotemporal dementia (FTD)	5
Mixed dementia (MD)	
Parkinson disease (PD)	

Table 2: Contributors to Dementia.

Pathophysiology

The disease processes underlying dementia are yet to be fully understood. With the (probable) exception of VD, all involve a pathological accumulation of a native protein, in the case of AD it is the extracellular plaques of amyloid and the intracellular tangles of hyperphosphorylated tau; in DLB it is alpha-synuclein in the form of Lewy bodes; in FTLD several culprits



Brain changes in Alzheimer disease

have been identified including TDP-43 and the hallmark proteins of AD and DLB in a frontotemporal distribution. These pathological accumulations are associated with synapse, neuronal loss and atrophy which also demonstrate patterns in terms of distribution.

Signs and Symptoms

Most dementia types are slow and progressive with variable symptoms across type and stage of the disease and vary with the affected individual. The signs and symptoms evolve along the following three phases:

Early phase: Gradual, often overlooked with common symptoms (forgetfulness, place and time confusion).

Middle phase: Clear and more restricting symptoms as the disease progresses, including need for greater help, having balance problems, tremors, trouble in eating & swallowing, speech & language difficulties, behavioral changes (wandering, restlessness, repeated questioning), forgetfulness (of recent events, peoples' names), other difficulties (communication, attention, problem-solving) and memory distortions (sequence of events, combination of memories, confusion of people etc.).

Late phase: Marked by serious memory disturbances (including not recognizing relatives and friends), greater physical difficulties, near total dependence and inactivity, behavioral changes (including aggressiveness, crying, anger), unawareness of

time and space. In all types of dementia, behavioral and psychological symptoms (BPSD) almost always occur such as: abnormal motor behavior, agitation, aggression, anxiety, apathy, sleep changes, delusions, depression, disinhibition and impulsivity, elated mood, irritability and psychosis.

Staging of the Disease

Dementia has four progressive and successive stages. The corresponding scores in the Mini-Mental State Examination (MMSE) are provided in Table 3 below:

Dementia Stage	MMSE Score
Mild Cognitive Impairment (MCI)	27-30 (normal)
Early Stage Dementia (ESD)	20-25
Middle Stage Dementia (MSD)	06-17
Late Stage Dementia (LSD)	<< 6

Table 3: Dementia Stages.

Mild Cognitive Impairment (MCI): Signs and symptoms (memory problems, trouble finding words) are subtle and not severe enough to affect daily life function. However, 70% of persons affected will go on to develop dementia at some later point in their life.

Early Stage Dementia (ESD): Symptoms (memory difficulties, anomia, executive function problems, personality change, social withdrawal, etc.) are more noticeable.

Middle Stage Dementia (MSD): Symptoms (problem-solving difficulties, impaired social judgement, preclusion of outside-of-the-home functioning, needed assistance for personal care and hygiene) generally worsen.

Late Stage Dementia (LSD): Symptoms (required assistance for personal care and hygiene, needed supervision for personal safety, changes in diet and sleep patterns, etc.) change significantly.

Cognitive Testing

Usual tests (memory, executive function, processing speed, attention, language skills, emotional and psychological adjustment) are used to rule out other etiologies and determining relative cognitive decline over time or from estimates of prior cognitive abilities. Several reasonably reliable tests have been employed and studied, it is recommended to administer them to people over age 65 (including demented patients) with memory complaints:

The Mini Mental State Examination (MMSE): A useful tool if accompanied by an assessment of a person's personality to perform activities of daily living and behavior.

The Montreal Cognitive Assessment Test (MOCA): A very reliable screen test, it is somewhat better than the MMSE for detecting mild cognitive impairment (MCI). It can be completed on-line.

The Self-Administered Questionnaire (SAQ): It asks about the person's everyday cognitive functioning to complement the information obtained from brief cognitive tests.

The Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE): It is not known how accurate this questionnaire is for diagnosing or predicting dementia.

The Alzheimer Disease Caregiver Questionnaire (ADCQ): It is about 90% accurate. It can be completed online or in the office by a caregiver.

The General Practitioner Assessment of Cognition (GPAC): It was designed for use in the primary care setting.

Test	Sensitivity (%)	Specificity (%)
MMSE	71-92	56-96
3MS	83-93.5	85-90
AMTS	73-100	71-100

Table 4: Sensitivity and Specificity of Common Tests for Dementia.

Investigations

Initial investigations for patients presenting with dementia are to exclude the reversible causes of cognitive impairment. These tests include:

- Vitamin B12
- Folic acid
- Thyroid-stimulating Hormone (TSH)
- C-reactive protein (CRP)
- Full blood count, including electrolytes, calcium, renal function and liver enzymes

Imaging Scans: Brain scanning may help in the diagnosis or even provide an accurate one.

- Computed Tomography (CT) or Magnetic Resonance Imaging (MRI): Either of these two scans-is commonly performed.
- Functional Neuroimaging Modalities of Single Photon Emission Computed Tomography (SPECT) and Positron Emission Tomography (PET).

Management

Management will be guided by the nature and severity of the symptoms and any safety concerns. Vascular risk factors should be addressed. Patients and relatives should be offered information and explanations. As previously emphasized, medical interventions remain therefore palliative with aim to alleviate pain and suffering. They include:

- Cognitive and behavioral interventions.
- Education and support for the patient and the patient's family and caregiver(s).
- Activity and exercise programs.

Psychological and reminiscence therapies:
While benefits are small, the areas covered include: Quality of life, cognition, communication, mood and cognitive reframing for caretakers, Validation therapy, and Mental exercises: such as cognitive stimulation programs. Adult daycare centers, special care units in nursing homes and home care: To provide specialized care and one-on-one care in the home.
Psychiatric nursing: Can make a distinct contribution to patients' mental health.

Psychopharmacotherapy for Alzheimer Disease and Other Dementia:

Treatment of memory problems (optional): Cholinesterase inhibitors: These drugs allow the chemical acetylcholine to be active, making up for its AD-related drops: Donepezil, Rivastigmine and Galantamine. They have been conditionally recommended by the U.K. National Institute for Clinical Excellence (NICE) as an option in the management of mild-to-moderate AD and by the U.S. Food and Drug Administration (FDA) for mild, moderate and severe dementia.

N-Methyl D-Aspartate (NMDA) receptor blockers: Memantine may be beneficial but less conclusively than for acetylcholinesterase inhibitor (AchEI) or anti-cholinesterase. These two drugs may be used in combination as to their differing mechanisms of action. Still the benefit of these combined drugs remains slight.

Treatment of behavioral symptoms including depression:
Selective Serotonin Reuptake Inhibitors (SSRI)- are preferred for depression. Widely used SSRIs include: Fluoxetine, Sertraline, Paroxetine, Citalopram and Escitalopram.
Antipsychotics: Not routinely recommended but used only if non-drug therapies have not worked and the person's actions threaten themselves or others.

Sleep problems: Can be treated with either medicine or behavior changes or both.

Changes in medication management: The Medications Appropriateness Tool for Co-Morbid Health-Dementia (MATCH-D) criteria can help changes in medication management. Aromatherapy, cannabinoids, omega-3 fatty acid supplements do not offer notable benefits.

Prevention

No medications or supplements have shown good preventative evidence. Efforts to prevent dementia include: Early education, decrease of risk factors (hypertension, diabetes and obesity, hearing loss, depression, social isolation, lifestyle changes that incorporate physical exercise, social activities and computerized cognitive training that may improve memory.

Conclusions

Significant advances have been made in the understanding of dementia in recent decades. Although it presents laboratory, clinical, social and economic challenges causing diseases overlap in their pathophysiology and phenotypes. The importance of dementia as a global priority is recognised in the declarations of the G8 Dementia Summit in 2013, committing the G8 nations to the improvement in the quality of life for people with dementia and their carers and identification of disease-modifying therapies by way of a co-ordinated and funded international research framework.

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Dengue

Dengue is a viral infection transmitted to humans through the bite of infected mosquitoes. It is found in tropical and sub-tropical climates worldwide, mostly in urban and semi-urban areas. While many dengue infections are asymptomatic or produce only mild illness, the virus can occasionally cause more severe cases and even death. Prevention and control of dengue depends on vector control. There is no specific treatment for dengue/severe dengue, early detection and access to proper medical care greatly lower fatality rates of severe dengue.

Types

There are four different serotypes of the dengue virus: (DEN-1, DEN-2, DEN-3 and DEN-4). Getting infected with any of these types through a female Aedes Aegypti mosquito causes dengue fever. The virus may also be transmitted through the Aedes Albopictus (Stegomyia albopicta) mosquito in rare cases.

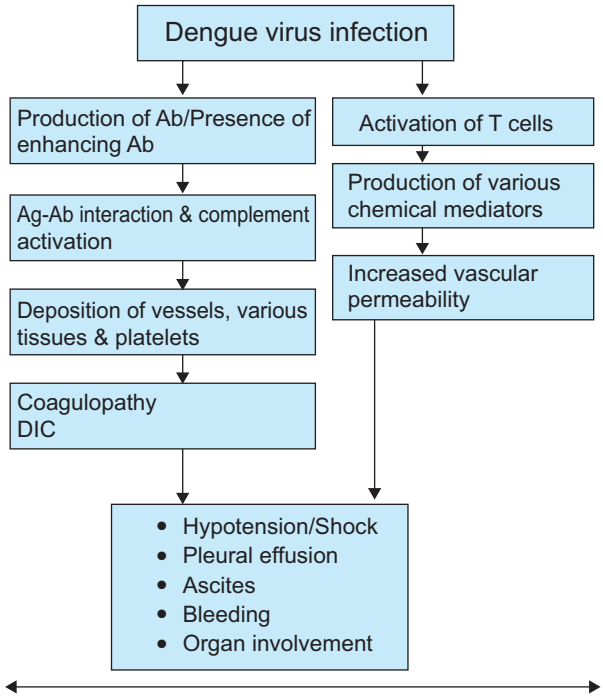
Modes of Transmission

Dengue fever is transmitted from one person to another through the bite of an Aedes Aegypti mosquito. A healthy mosquito becomes infected when feeding on the blood of a person infected with the virus, then transmit it to healthy people when it moves to feed on their blood. Infected people can transmit the disease to others through mosquitos for 4-5 days (up to 7 days) since the onset of infection.

Incubation Period

Symptoms begin to manifest 4-10 days after being bitten by an infected mosquito.

Pathophysiology



Key features of dengue

Dengue fever

- High, continued fever for 2-7 days
- Headache
- Myalgia
- Arthralgia/ bone pain (break-bone fever)
- Rash
- GIT manifestation: Nausea, vomiting, diarrhea
- Hemorrhagic manifestations (mild, unusual haemorrhage)
- Leukopenia (WBC <5,000 cells/mm3)

Platelet count ≤150,000 cells/mm3

- Rising Hct 5-10%

Diagnosis:
Tourniquet test positive + WBC ≤ 5,000 cells/cu.mm (positive predictive value = 83%)

Dengue Hemorrhagic Fever (DHF)

- High, continuous fever 2-7 days.
- Hemorrhagic manifestations: tourniquet test positive, petechiae, ecchymosis, purpura, epistaxis, hematemesis etc.
- Liver enlargement ±
- Shock±
- Platelet counts ≤100,000 cells/mm3.

Evidence of plasma leakage:

- Pleural effusion,
- Ascites,
- Rising Hct ≥ 20% (Hct may remain normal when overt or covert bleeding present in leakage phase)
- Hypoalbuminemia (serum albumin < 3.5 gm % or <4gm% in obese patients)
- Peri-cholecystic fluid collection evidenced by USG

Dengue shock syndrome (DSS)

- Evidence of plasma leakage+ evidence of circulatory failure
- Platelet counts ≤100,000 cells/mm3.

Evidence of plasma leakage

Evidence of circulatory failure:

- Cold clammy skin,
- CRFT>2 Sec,
- Tachycardia,
- Weak pulse,
- Narrow pulse pressure <20, hypotension

Diagnosis

The disease is difficult to diagnose by its symptoms and signs, given their similarity to several other diseases, such as chikungunya, malaria. However, ask the patient in detail about medical history and the regions and countries to which they have been recently visited.

History

The history should include:

- Date of onset of fever/illness.
- Quantity of oral fluid intake.
- Asssesment for warning signs.
- Diarrhea.
- Change in mental state/seizure/dizziness.
- Urine output (frequency, volume and time of last voiding).
- Other important relevant histories, such as family or neighborhood dengue, co-existing conditions (e.g. infancy, pregnancy, obesity, diabetes mellitus, hypertension).

Physical examination

The physical examination should include:

- Assessment of mental state.
- Assessment of hydration status.
- Assessment of hemodynamic status.
- Checking for tachypnoea/ acidotic breathing/pleural effusion.
- Checking for abdominal pain, tenderness/ hepatomegaly/ascites.
- Examination for rash and bleeding manifestations.
- Tourniquet test (repeat if previously negative or if there is no bleeding manifestation).

Investigations

- 1 to 5 days' fever: CBC, NS1 Antigen, SGPT and SGOT (Not mandatory but helpful)
- After 7 days: IgM and IgG Antibodies (Day 5 to 7 window period)
- Follow up testing may be done on 1st afebrile day but should be done daily in case of DHF.
- Haematocrit: A regular haematocrit is very important for management of thrombocytopenia. In severe dengue specially shock hourly haematocrit monitoring is crucial for management.

Supportive tests

- CXR P/A view
- USG of W/A
- LFTs
- RFTs
- Coagulation profile
- Serum electrolytes
- Serum albumin
- ABG analysis
- ECG, ECHO

Certainty of the evidence	Signs and Symptoms		
	Dengue	**Chikungunya**	**Zika**
HIGH (findings that differentiate them)	- Thrombocytopenia - Progressive increase in hematocrit - Leukopenia	Arthralgias	Pruritus
MODERATE (findings that probably differentiate them)	- Anorexia or hyporexia - Vomiting - Abdominal pain - Chills - Hemorrhages (includes bleeding on the skin, mucous membranes, or both)	Rash Conjunctivitis Arthritis Myalgias or bone pain	Rash Conjunctivitis
LOW (findings that may differentiate them)	- Retro-ocular pain - Hepatomegaly - Headache - Diarrhea - Dysgeusia - Cough - Elevated transaminases - Positive tourniquet test	Hemorrhages (includes bleeding on the skin, mucous membranes, or both)	Adenopathies Pharyngitis or odynophagia

Clinical dfferentiation among dengue, chikungunya and zika.

Treatment

There is no specific therapy available for dengue virus infections, it is important to exclude other treatable diagnoses. Patients at risk for dengue can acquire other diseases with similar clinical features, such as malaria, typhoid fever and leptospirosis. Symptoms in patients with dengue virus infections resolve in 5 to 7 days. Supportive treatments are available for the specific disease manifestations of dengue virus infection.

Home care for dengue

- Adequate bed rest.
- Adequate fluid intake (>5 glasses for average-sized adults or accordingly in children).
- Milk, fruit juice (caution with diabetes patient) and isotonic electrolyte solution (ORS) and barley/rice water.
- Plain water alone may cause electrolyte imbalance.
- Take paracetamol (not more than 8 tabs (4 gm) per day for adults).
- Tepid sponging with water or cold water shower.
- Look for mosquito breeding places in and around the home and eliminate them.
- Avoid all NSAIDS and steroids.
- Withhold Aspirin, clopidogrel & dipyridamole in patients who take for long term.

Hospital Management

If the patient has dengue with warning signs or signs of dehydration, judicious volume replacement by IV fluid may modify the course and severity of disease.

Give only isotonic fluid such as 0.9% NaCl saline, Ringer's lactate or Hartmann's saline.

Start with 5-7 mg/kg/hr for 1-2 hrs, then reduce to 3-5 mg/kg/hr for 2-4 hrs, then 2-3 ml/kg/hr or less according to response. IV fluid needed only for 24-48 hrs.

Calculation of Maintenance Intravenous Fluid Infusions (Holliday and Segar Method):

4 mL/kg/h for first 10kg body weight
+2 ml/kg/h for next 10kg body weight
+1 ml/kg/h for subsequent kg body weight

*For overweight/obese patients calculate normal maintenance fluid based on ideal body weight

Ideal bodyweight can be estimated based on the following formula
Female: 45.5 kg + 0.91 (height -152.4)cm
Male: 50.0 kg + 0.91(height-152.4) cm

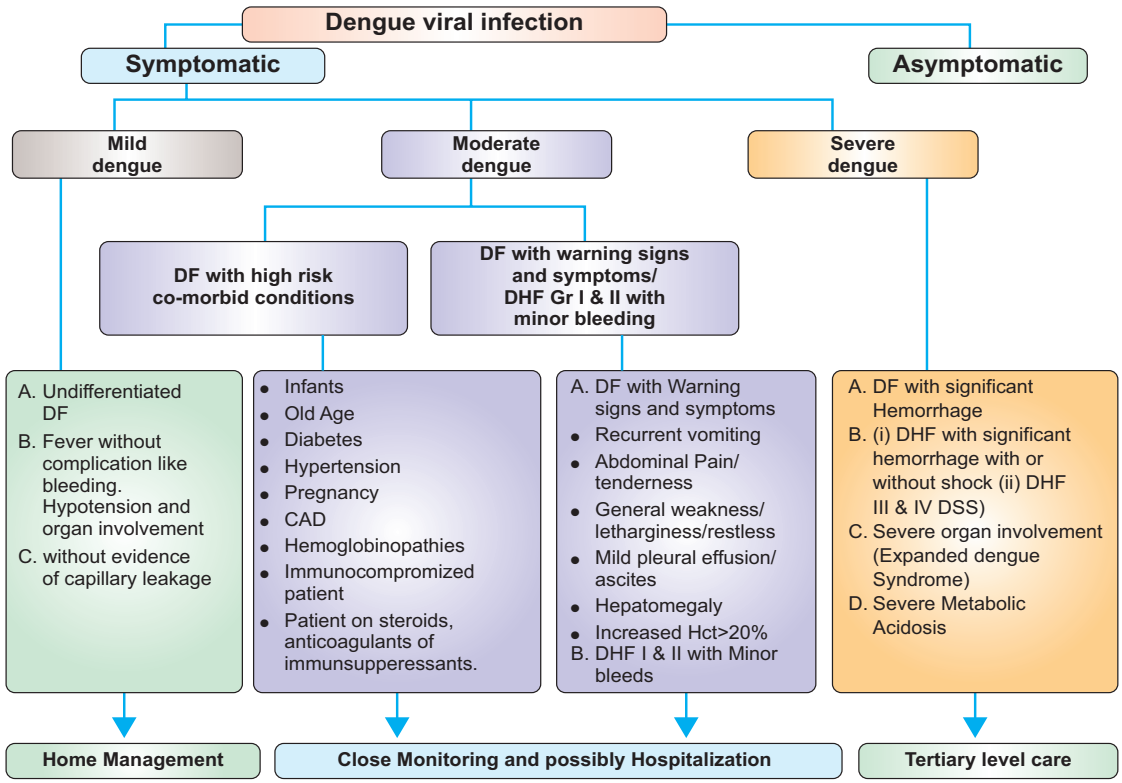
Indications for blood transfusion

Only 10-15% patients need blood

- Overt bleeding (more than 10% or 6-8ml/kg).
- Significant drop of HCT < 40 (< 45 for males) after fluid resuscitation.
- Hypotensive shock + low/normal HCT.
- Persistent or worsening metabolic acidosis.
- Refractory shock after fluid 40-60 ml/kg.
- Evidence of plasma leakage.

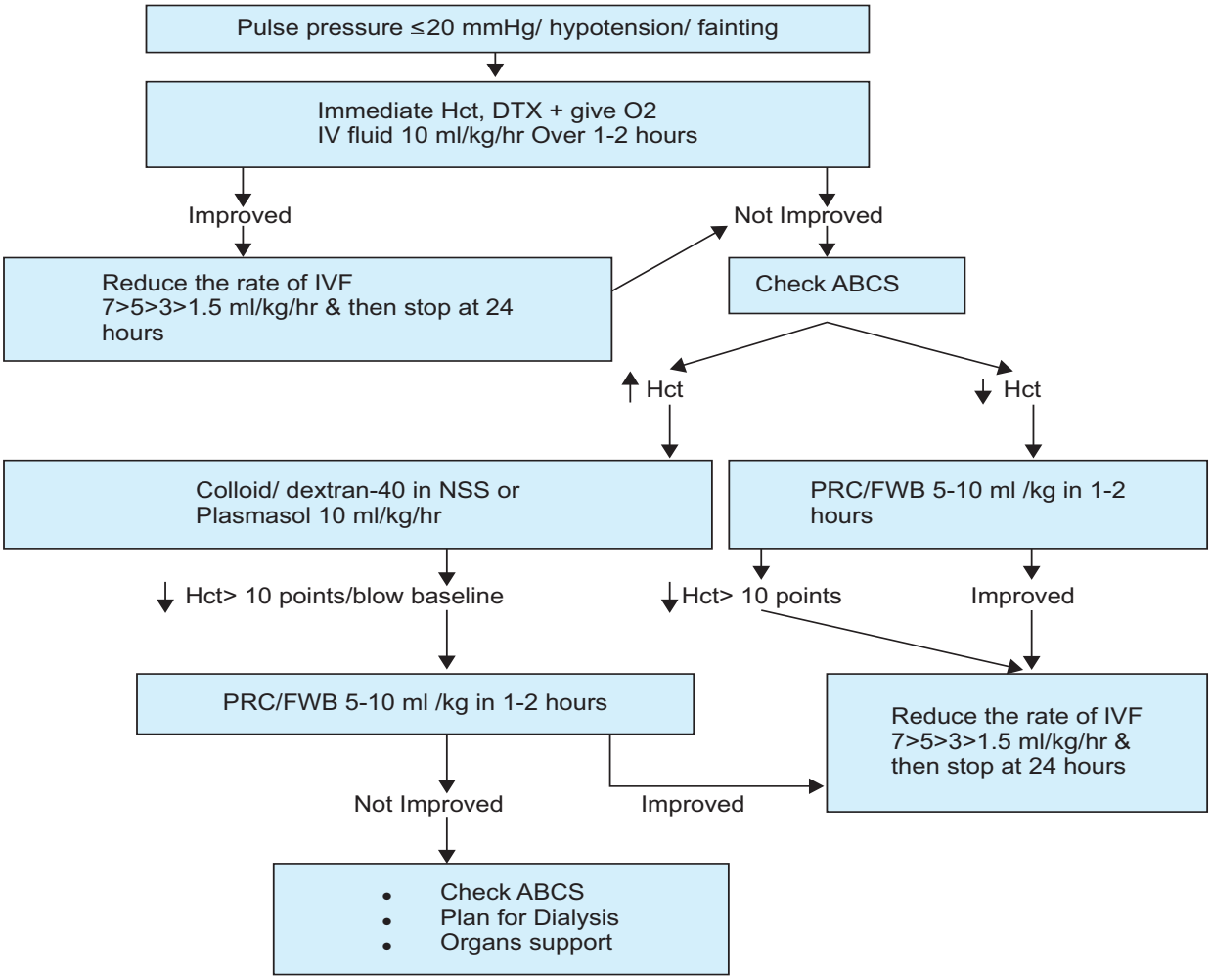
Complications

- Hemorrhagic complications.
- Fluid overload.
- Ascites, Pleural effusion, Pulmonary edema.
- Metabolic acidosis and electrolyte imbalance.
- Severe shock.
- Acute Respiratory Distress Syndrome.
- Hyperglycemia and hypoglycemia.
- Nosocomial infections.



Dengue Management: National Guideline

Treatment of DSS (Compensated)



- Myocarditis.
- Hepatitis.

Prevention and Control

Lower the risk of getting dengue by protecting from mosquito bites using:

- Clothes that cover as much of own body.
- Mosquito nets.
- Window screens.
- Mosquito repellents.
- Coils and vaporizers.

Mosquito breeding can be prevented by:

- Preventing mosquitoes from accessing egg-laying habitats by environmental management and modification.
- Disposing of solid waste properly and removing artificial man-made habitats that can hold water.
- Covering, emptying and cleaning domestic water storage containers on a weekly basis.
- Applying appropriate insecticides to outdoor water storage containers.

Vaccine

So far one vaccine (QDenga) has been approved and licensed in some countries. However, it is recommended only for the age group of 6 to 16 years in high transmission settings. Several additional vaccines are under evaluation.

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CASE STUDY

A young 28 years primigravida, confirmed the pregnancy & she was in first trimester. It was a spontaneous conception. She was obese weighing 100 kgs with known case of PCOS. During antenatal period, she developed gestational diabetes at 30th week and preeclampsia near term. She was put on medicines with which it was well controlled. She had a history of full term unexplained intrauterine demise followed by one caesarean section in view of fetal distress. On completion of 37 weeks of pregnancy her caesarean section was planned, during LSCS it was found that her right tubo-ovarian complex was completely adherent to the lateral wall of uterus and on posterior wall of uterus she had evidence of active endometriosis. It was spreading all over posterior wall till pouch of douglas but bowel and rectum were free of adhesions. They had only powder burn appearance. It was quite vascular and was bleeding on touch. Histopathology confirmed the diagnosis of endometriosis.

Endometriosis is a silent condition affecting millions of women worldwide. It is a disease in which presence of functioning endometrium (glands and stroma) in sites other than uterine mucosa. It can cause severe pain in the pelvis and make it harder to get pregnant. It may start at a women's first menstrual period and last until menopause.

The disease causes a chronic inflammatory reaction that may result in the formation of scar tissue (adhesions, fibrosis) within the pelvis and other parts of the body. Several types of lesions have been described:

- Superficial endometriosis found mainly on the pelvic peritoneum.
- Cystic ovarian endometriosis found in the ovaries.
- Deep endometriosis found in the recto-vaginal septum, bladder and bowel.
- In rare cases, endometriosis has also been found outside the pelvis.

Localization

Most often, endometriosis is found on the:

- Ovaries
- Fallopian tubes
- Tissues that hold the uterus in place (ligaments)
- Outer surface of the uterus

Less common pelvic sites are:

- Vagina
- Cervix
- Vulva
- Bowel
- Bladder
- Rectum

Extra pelvic endometriosis has been reported in any region of the body including bowel, bladder, lung, kidney, extremities, perineum and umbilicus. Less than 12% of reported cases of endometriosis are refers to implants found else anywhere in the body. Extra-pelvic endometriosis may be found in the surgical scar area and subcutaneous tissue after obstetric and gynecologic surgery. Endometriosis may be seen after the interventions that contain endometrial tissue such as caesarean section, episiotomy for a vaginal delivery, hysterectomy and operation for ectopic pregnancy.

Causes

The exact cause of endometriosis is unknown but there are many possible causes and risk factors.

Possible causes:

- Retrograde menstruation
- Genetic factors
- Immune system issues
- Hormones
- Surgical complications
- Environmental factors
- Diet

Risk factors:

- Family history

- Starting menstruation before age 11 Years
- Short menstrual cycles
- Heavy menstrual periods
- Late menopause
- Structural abnormalities in the uterus

Symptoms

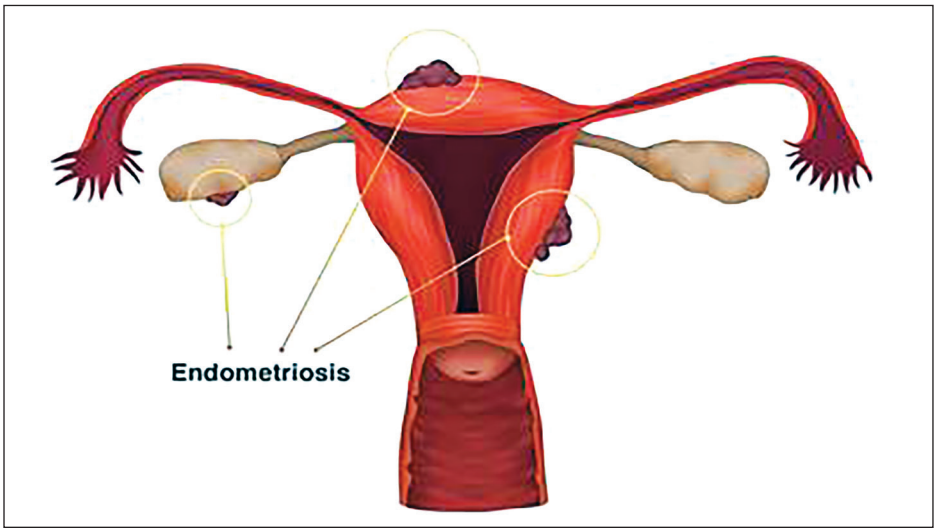
Some people with endometriosis do not have any symptoms. For those who do a common symptom is pain in the lower part of the abdomen. Pain may be most noticeable:

- During a period
- During or After sex
- During urination or defecation

Some people also experience

- Chronic pelvic pain
- Heavy bleeding periods
- Trouble getting pregnant
- Bloating or Nausea
- Fatigue
- Depression or Anxiety

These symptoms often improve after menopause, but not always.



Common Sites of Endometriosis

Diagnosis

Diagnose depends on physical exam, history and a surgical procedure called a laparoscopy.

Physical exam:

- Vagina & uterus for tenderness, nodules or cysts
- Enlarged uterus may indicate adenomyosis
- Cystic mass indicate an ovarian endometrioma

Laparoscopy:

Surgeon makes a small incision in the abdomen, inserts a thin tube with a camera and light to look at the reproductive organs, may take a tissue sample (biopsy) to confirm the diagnosis.

Other test:

- Ultrasound
- MRI

Treatment

Types of Drugs:

1) Non steroidal anti-inflammatory drugs
2) Hormonal drugs:
   - Progestogens
   - Hormonal contraceptives
   - Danazol
   - GnRH Analogues
3) Selective progesterone receptor modulators
4) Aromatase inhibitors

These methods may not be suitable for those wanting to get pregnant. Fertility medicines and surgery are sometimes used to remove endometriosis lesion, adhesions and scar tissues.

Conclusion

Early diagnosis and treatment can improve outcomes. There is no cure for endometriosis, but it can sometimes resolve on its own. A multidisciplinary approach may be needed to manage complex pain. WHO is also collaborating with relevant stakeholders to facilitate and support the collection and analysis of country-and region-specific endometriosis prevalence data for decision-making.

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Fatty Liver

Fatty liver also known as hepatic steatosis, occurs when excess fat builds up in the liver. Normally the liver contains a small amount of fat, but when fat makes up more than 5–10% of the liver's weight, it is classified as fatty liver. If untreated, fatty liver can progress from simple fat accumulation to inflammation, fibrosis and eventually cirrhosis or liver failure.

Classification

Fatty liver it is broadly divided into two main types:

Non-Alcoholic Fatty Liver Disease (NAFLD): It occurs in people who consume little or no alcohol. It is the most common liver disorder in industrialized countries. Can progress to fibrosis, cirrhosis and hepatocellular carcinoma (HCC).

It may be further divided into-

- Simple Steatosis (NAFL) – fat accumulation without inflammation.
- Non-Alcoholic Steatohepatitis (NASH) – fat accumulation with inflammation and liver cell damage.

Alcoholic Fatty Liver Disease (AFLD): It is caused by excessive alcohol consumption. Here fat accumulates as a toxic byproduct of alcohol metabolism. Alcoholic fatty liver disease (AFLD) is the earliest stage of alcohol-related liver disease. If there is no inflammation or other complications, the condition is known as simple alcoholic fatty liver. Alcoholic steatohepatitis (ASH) is a type of AFLD that may progress to fibrosis and cirrhosis.

Etiology & Risk Factors

NAFLD Risk Factors:

- Obesity (especially central/visceral)
- Type 2 diabetes mellitus
- Dyslipidemia (high triglycerides, low HDL)
- Metabolic syndrome
- Insulin resistance
- Polycystic ovary syndrome (PCOS)
- Sleep apnoea
- Hypothyroidism
- Sedentary lifestyle
- Poor dietary habits (high sugar, fructose, processed food)

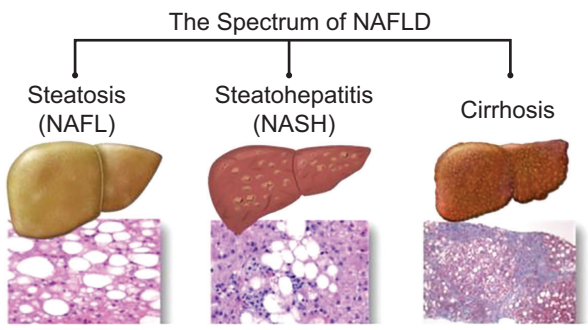

Figure: 01

AFLD Risk Factors:

- Chronic alcohol intake
- Genetic predisposition
- Gender (females are more susceptible)
- Poor nutrition
- Hepatitis C virus (HCV) co-infection

Pathophysiology

The pathogenesis of fatty liver disease is multifactorial and best explained by the **"multiple-hit hypothesis"**-

1. **First hit**: Accumulation of triglycerides in hepatocytes due to insulin resistance, lipotoxicity and altered lipid metabolism.
2. **Second hit:** Oxidative stress, mitochondrial dysfunction, cytokine release (TNF-α, IL-6), endotoxins and gut microbiota imbalance cause inflammation and hepatocellular injury.
3. **Progression:** Fibrosis develops due to activation of hepatic stellate cells, which can evolve into cirrhosis or liver cancer.

Clinical Features

Asymptomatic in Early Stages:

- Most patients are incidentally diagnosed via elevated liver enzymes or imaging.

Symptoms (when present):

- Fatigue
- Malaise
- Upper right quadrant discomfort or pain
- Unexplained weight loss
- Nausea or decreased appetite

Signs in Advanced Disease:

- Hepatomegaly
- Jaundice
- Ascites
- Spider angioma
- Palmar erythema
- Encephalopathy (in cirrhosis)
- Signs of portal hypertension

Diagnosis

Laboratory Investigations:

- Liver function tests: Elevated ALT/AST.
- Lipid profile.
- HbA1c or fasting glucose.
- Serum ferritin (may be elevated).
- Exclude other causes: viral hepatitis panel, autoimmune markers, Wilson's disease, hemochromatosis.

Imaging:

- Ultrasound (first-line): shows increased echogenicity.
- CT/MRI: more sensitive, can assess fat and fibrosis.
- Fibro Scan (transient elastography): non-invasive liver stiffness measurement.

Liver Biopsy:

- Gold standard to assess inflammation, steatosis and fibrosis.
- Indicated when diagnosis is uncertain or to stage disease (especially NASH).

Treatment

Non-Pharmacologic:

- Weight loss: 7–10% can reverse steatosis and NASH.
- Diet:
  - Nutrient-rich diet that's low in excess calories, saturated fat and trans fats.
  - Increase fiber, omega-3 fatty acids.
- Exercise: Moderate intensity, 150–300 min/week
- Alcohol abstinence (even in NAFLD).

Pharmacologic:

No FDA-approved drug yet for NAFLD but under investigation.

- Pioglitazone – improves liver histology in NASH (esp. in diabetic).
- Vitamin E – supplements might help improve ALT/AST levels, inflammation and excess fat in NAFLD.
- GLP-1 agonists (e.g., Semaglutide) – promote weight loss and improve steatosis.
- Obeticholic acid – FXR agonist (clinical trials).

Surgical:

- Bariatric surgery: For obese patients with NAFLD/NASH.

Complications

- Liver fibrosis
- Cirrhosis
- Hepatocellular carcinoma (HCC)
- Liver failure
- Portal hypertension
- Cardiovascular disease – Number one cause of death in NAFLD

Prognosis

- Simple steatosis has a good prognosis with proper lifestyle changes.
- NASH has higher risk of progression to cirrhosis and liver cancer.
- Early identification and risk factor control significantly improve outcomes.

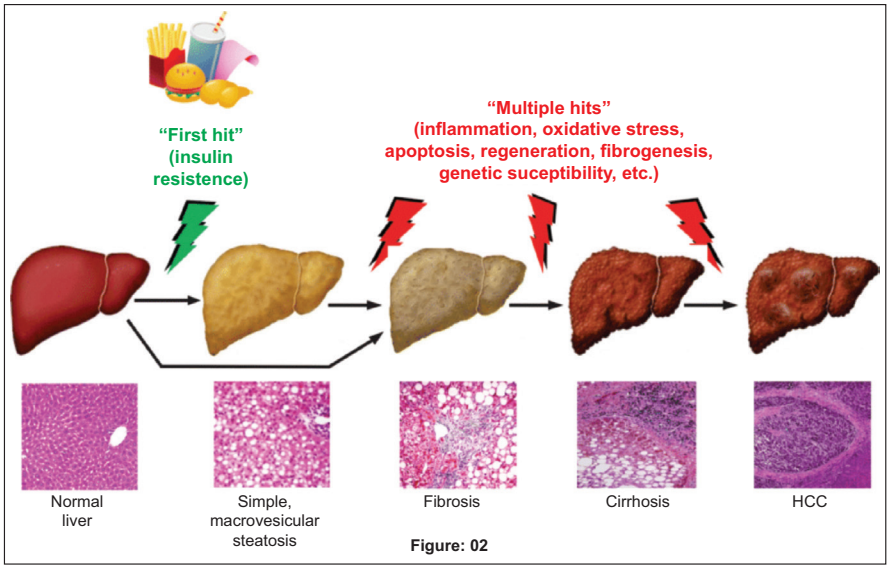

Figure: 02

Prevention

- Maintain healthy body weight wtih balanced diet.
- Regular physical activity.
- Control of diabetes, cholesterol & blood pressure.
- Avoid alcohol (especially if diagnosed).
- Routine screening in high-risk (obese, diabetic).

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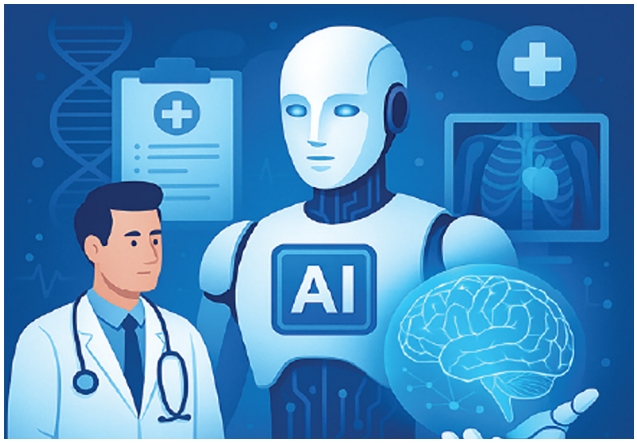
AI in Healthcare



Artificial Intelligence (AI) is transforming the landscape of modern medical science, offering unprecedented opportunities to enhance diagnosis, treatment and patient care. From streamlining administrative tasks to providing decision support for clinicians, AI is proving to be a game-changer in medical science. This article explores the evolution, applications, benefits and challenges of AI in healthcare, highlighting its potential to reshape the future of medicine.

The Evolution of AI in Medical Science

The journey of AI in healthcare began with rule-based expert systems designed to mimic clinical decision-making. Over time, advancements in machine learning, deep learning and natural language processing (NLP) have enabled AI systems to analyze complex medical data, recognize patterns and generate insights that surpass human capabilities in certain areas. Today, AI continues to evolve and integrates with big data, cloud computing and wearable technologies to support precision medicine and personalized care.

Key Applications of AI in Medical Science

1. **Medical Imaging and Diagnostics:** AI-powered imaging systems i.e. using deep convolutional neural networks (CNNs) are revolutionizing radiology, pathology and dermatology. These systems can detect abnormalities in X-rays, CT scans, MRIs and histopathology slides with high accuracy, assisting doctors in early diagnosis of diseases like cancer, stroke and pneumonia.
2. **Predictive Analytics and Disease Prevention:** Machine learning algorithms analyze electronic health records (EHRs), genetic data and lifestyle information to predict disease risks. AI-driven predictive models are aiding in the early identification of conditions such as diabetes, cardiovascular disease and sepsis, enabling timely intervention and improved patient outcomes.
3. **Drug Discovery and Development:** AI accelerates drug discovery by identifying potential drug molecules, simulating molecular interactions, and optimizing clinical trials. Companies like DeepMind and BenevolentAI have demonstrated AI's capability in discovering novel treatments for diseases, reducing the time and cost traditionally associated with pharmaceutical research.
4. **Personalized Treatment Plans:** AI systems analyze patient data, medical literature, and clinical guidelines to recommend personalized treatment plans. This approach is particularly effective in oncology, where precision medicine tailors therapies based on genetic profiles and tumor characteristics.
5. **Virtual Health Assistants and Chatbots:** AI-powered virtual assistants engage with patients to provide medical advice, monitor chronic conditions and remind them to take medications. Chatbots offer triage services, helping patients determine whether they need to seek medical attention or manage symptoms at home.
6. **Robotic Surgery:** Surgical robots equipped with AI assist surgeons in performing complex procedures with enhanced precision, minimal invasiveness and faster recovery times. Systems like the da Vinci Surgical System combine human expertise with AI-driven precision setting new standards in minimally invasive surgery.
7. **Administrative Automation:** AI streamlines administrative tasks such as medical coding, billing and scheduling, reducing the burden on healthcare providers and allowing them to focus more on patient care.
8. **Remote Patient Monitoring:** Wearable devices integrated with AI track vital signs like heart rate, oxygen levels and glucose levels, providing real-time data to healthcare providers. This supports proactive management of chronic diseases and early detection of health deterioration.
9. **Mental Health Support:** AI-driven mental health

apps provide cognitive behavioral therapy (CBT), mood tracking and emotional support. Virtual counselors help patients cope with anxiety, depression and stress offering an accessible, stigma-free way to seek help.

10. **Genomics and Precision Medicine:** AI accelerates genetic analysis, identifying mutations linked to inherited disorders and cancer. This supports tailored treatment plans, improving therapeutic outcomes and minimizing adverse reactions.

Benefits of AI in Medical Science

- **Enhanced Accuracy:** AI systems reduce diagnostic errors and improve the accuracy of imaging interpretations.
- **Faster Diagnoses:** AI can analyze vast datasets within seconds, accelerating the diagnostic process.
- **Personalized Care:** Tailored treatment plans lead to better patient outcomes and improved quality of life.
- **Cost Efficiency:** Automation reduces operational costs and optimizes resource utilization.
- **Research Advancement:** AI facilitates faster drug discovery and biomedical research breakthroughs.
- **Improved Access to Care:** Telemedicine and virtual assistants extend healthcare services to remote areas, addressing physician shortages.
- **Continuous Monitoring:** Remote patient monitoring ensures chronic conditions are managed proactively, reducing hospital readmissions.

Challenges and Ethical Considerations

- **Data Privacy and Security:** Ensuring patient data confidentiality is paramount, requiring robust cybersecurity measures.
- **Bias and Fairness:** AI models trained on biased data may produce inequitable outcomes, necessitating diverse representative datasets.
- **Regulatory Compliance:** Adhering to healthcare regulations and obtaining approval for AI-based medical devices is complex and time-consuming.
- **Human-AI Collaboration:** Balancing AI support with human expertise is essential to maintain trust and accountability.
- **Workforce Adaptation:** Healthcare professionals need training to effectively integrate AI tools into clinical practice.
- **Algorithm Transparency:** AI models should be interpretable and explainable to clinicians and patients to ensure trust and informed decision-making.
- **Economic Disparities:** The cost of advanced AI systems may create healthcare inequalities with resource-limited regions falling behind.

Future Outlook

The future of AI in medical science holds immense promise. Emerging technologies like explainable AI (XAI), quantum computing and federated learning are poised to address current limitations and unlock new possibilities. Collaboration between healthcare providers, technology developers and policymakers will be crucial to ensure ethical AI deployment and maximize its potential to improve global health outcomes.

AI-driven innovations such as digital twins (virtual patient models), AI-enabled drug repurposing and real-time outbreak prediction systems are on the horizon. These advancements promise more personalized medicine, faster pandemic response, and unprecedented breakthroughs in complex disease management.

Conclusion

Artificial intelligence is redefining medical science, offering innovative solutions to longstanding healthcare challenges. While hurdles remain the potential benefits far outweigh the risks. With continued research, ethical considerations and collaborative efforts, AI can revolutionize healthcare delivery, enhance patient care and pave the way for a healthier future.

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Royal College Membership

Introduction

A recently passed MBBS from Bangladesh, who also happens to be in a pursuit of conquering excellence in evidence-based patient-care, has a plethora of post-graduation paths to pursue. Becoming a member of the prestigious Royal College of the UK is one of the best options. Upon receiving the membership, a clinician's ability to diagnose and manage a patient efficiently improves significantly. Moreover, a candidate who completes all the steps of the exams, gets a General Medical Council (GMC) registration, which means the doctor is now eligible to practice in the UK. This article will shed some light on the Royal College Membership exams. Covering every minute details is beyond the scope of this article. Interested doctors will have to check the respective websites for those fine details.

These are some of the most sought-after Royal College Membership Exams:

- MRCP – Membership of the Royal College of Physicians: for medicine enthusiasts.
- MRCS – Membership of the Royal College of Surgeons: for aspiring surgeons.
- MRCOG – Membership of the Royal College of Obstetricians and Gynaecologists: for specialists in obstetrics and gynecology.
- MRCPCH – Membership of the Royal College of Paediatrics and Child Health: for those pursuing a career in paediatrics.
- MRCEM – Membership of the Royal College of Emergency Medicine: for physicians specializing in emergency medicine.
- MRCPsych – Membership of the Royal College of Psychiatrists: as the name suggests, for psychiatrists.

General Information Regarding All Examinations

Some information regarding all the examinations are about the same. For example, eligibility criteria for all of them include Primary Medical Qualification (PMQ) and 12 months clinical experience. Thankfully, MBBS covers the PMQ and our one year internship covers the 12 months clinical experience. Another thing that this article is not covering is what time gap a doctor can take in-between the parts. It varies from exam-to-exam and usually the Royal Colleges offer a generous time period to complete all the parts. Finally, possessing an English Language Proficiency is not mandatory to take the first part of any of the exam. Having saying that, if a doctor decides to practice in the UK upon completing all the parts, having a recommended score in IELTS/ OET examination becomes mandatory.

MRCP

Membership of the Royal College of Physicians (MRCP) is one of the most prestigious degrees an internist can achieve. MRCP exam comprises of 3 parts.

Part 1

MRCP Part 1 is the entry-level exam for doctors with at least 12 months of postgraduate medical experience. It is worth mentioning that this 12 months experience is covered by the compulsory 1 year internship program of Bangladeshi MBBS graduates. The MRCP Part 1 exam assesses core knowledge and understanding across a broad range of topics aligned with the UK Core Medical Training/Internal Medicine Training curriculum.

The exam tests essential medical knowledge clinical science and familiarity with UK national guidelines. It builds on undergraduate education and ensures candidates are developing the necessary foundation for clinical reasoning and decision-making in postgraduate training.

Success in Part 1 shows that the candidate's medical knowledge has not only been retained but has progressed in line with current practice. It serves as a key milestone before advancing to the more in-depth Part 2 Written and Clinical Exams.

The exam at a glance –

- one-day exam
- two three-hour papers
- 100 multiple-choice *(best of five)* questions per paper
- no images
- computer-based

As of now, the MRCP Part 1 exams are held 3 times in a year, each of them are affectionately called *Diets*. Seats availability and exam fees are to be checked through the designated website. Currently the exam costs £ 655. A candidate can participate in this exam from Bangladesh from designated centres.

Part 2

MRCP Part 2 Written is open to doctors who have passed Part 1. It builds on the knowledge from Part 1 and evaluates applied clinical understanding in line with the UK Core/Internal Medicine Training curriculum.

The exam, introduced in its current format in 2018, consists of two 3-hour papers with 100 questions each. It focuses on assessing a candidate's ability to make informed clinical decisions including:

- prioritising diagnoses
- planning investigations
- choosing immediate and long-term management plans
- evaluating prognosis

The exam at a glance –

- two papers taken on one day
- papers last three hours
- 100 multiple choice questions *(best of five)* per paper
- questions include images
- computer-based

There are 3 *Diets* for Bangladesh and it is online only. Which means a candidate has to have to a functioning computer or mobile device (preferably computer) and a good, stable internet connection. Part 2 fee also costs £ 655.

Practical Assessment of Clinical Examination Skills – PACES

PACES, which is actually called MRCP Part 2 Clinical, assesses the clinical skills of doctors aiming to enter higher specialty training. Candidates must pass Part 1 within the past 7 years to be eligible. The exam ensures you meet high standards of competence and are prepared to deliver quality patient care.

The exam at a glance –

- half-day examination
- takes place in a clinical setting (hospital or clinical skills centre)
- assesses seven core skills
- five stations
- eight patient encounters

As this article is being written, PACES can be taken from Bangladesh. However, the dates and seat availability is subject to some factors. So it is best to check the availability from the website.

All of these, including more can be found at https://www.thefederation.uk/examinations

MRCS

Part A

The **MRCS Part A** is a five-hour multiple-choice exam split into two papers taken on the same day: a three-hour Applied Basic Sciences (ABS) paper and a two-hour Principles of Surgery in General (PoSG) paper.

The exam is delivered through computer-based testing at Pearson VUE centres, which is available in Bangladesh. There are usually 2 diets, cost about £ 625 plus tax if applicable.

Additional booking details are available on the Pearson VUE website (https://www.pearsonvue.com/us/en/icbse.html) and the RCS website (https://www.rcseng.ac.uk/)

Part B (OSCE)

MRCS Part B is an Objective Structured Clinical Examination (OSCE) made up of 17 stations, each lasting 9 minutes.

The exam covers two main areas:

- Applied knowledge, which includes anatomy, surgical pathology, applied surgical science and critical care.
- Applied skills, which involve communication (both giving and receiving information), history taking, and clinical and procedural skills.

This exam is not currently available in Bangladesh. This year in Asian region, the exam can be taken from India, Malaysia, Egypt, Pakistan and Sri Lanka. There are usually 2 diets and the exam fee is about £ 1132.

MRCOG

Part 1

The MRCOG Part 1 covers the basic and applied sciences relevant to the clinical practice of obstetrics and gynaecology.
The exam at a glance –
The exam consists of two papers, each with 100 single best answer (SBA) questions.

SBA Paper 1

- **Duration:** 2.5 hours (150 minutes)

- **Number of Questions:** 100 SBAs
- **Note:** A lunch break (approximately 1 hour) will follow Paper 1.

SBA Paper 2

- Duration: 2.5 hours (150 minutes)
- Number of Questions: 100 SBAs

MRCOG Part 1 exams are **held twice a year in January and July**, both in the UK and at various overseas locations which include Bangladesh. Exam fee is £ 572.

Part 2

The MRCOG Part 2 computer-based test, consisting of two papers, each contributing equally (50%) to the final score. Each paper includes:

- **Single Best Answer questions (SBAs):** 40% of the marks in each paper
- **Extended Matching Questions (EMQs):** 60% of the marks in each paper

Paper 1

- **Duration:** 3 hours (180 minutes)
- **Number of Questions:** 50 SBAs, 50 EMQs
- **Time Management:** Candidates are responsible for their own time management but the RCOG recommends 70 minutes for SBAs and 110 minutes for EMQs.

Lunch break (approx. 60 minutes)

Paper 2

- **Duration:** 3 hours (180 minutes)
- **Number of Questions:** 50 SBAs, 50 EMQs
- **Time Management:** The RCOG recommends 70 minutes for SBAs and 110 minutes for EMQs.

MRCOG Part 2 exams are **held twice a year in January and July**, both in the UK and at various overseas locations, including Banlgadesh. Exam fee is £ 572.

Part 3

The MRCOG Part 3 is a clinical assessment of knowledge, skills, attitudes and competencies. Passing this final exam leads to the award of designatory letters MRCOG and membership of the College.

As already mentioned, it is a clinical exam made up of 14 tasks, each linked to a module from the syllabus.

Each task assesses 3–4 of the following five domains, reflecting real-world clinical practice:

- Patient safety
- Communication with patients and relatives
- Communication with colleagues
- Information gathering
- Applied clinical knowledge

Tasks are 12 minutes long, including 2 minutes for reading before starting.

MRCOG Part 3 exams are **held twice a year in May and November**. It is available in Bangladesh. It costs about £ 883.

Details can be found at https://www.rcog.org.uk/

MRCEM

Part 1 (Primary)

The MRCEM Primary examination is a theoretical exam mapped to the Emergency Medicine 2021 Curriculum with more detailed information provided in the RCEM Basic Sciences Curriculum (June 2010) which is available on the RCEM website.

The exam at a glance –

- Exam Type: Theory
- Exam format: Multiple choice questions (MCQ) with single best answers (SBA)
- Number of Questions: 180
- Sections: 1
- Timing: 3 hours
- Location: Pearson Vue Test Centres, available in Bangladesh
- Content: RCEM Basic Sciences Curriculum (June 2010)

MRCEM primary exam is **held twice a year – in May and October**. Exam fee is £ 460-554.

Part 2 (SBA)

The MRCEM SBA is a written exam that tests knowledge of the wide variety of conditions and presentations that can occur in the emergency department. To prepare, candidates should review the Stage 1 (Years 1–3) Specialty Learning Outcomes (SLOs).

The exam at a glance –

- Exam Type: Theory
- Exam Format: Multiple choice questions (MCQ) with single best answers (SBA)
- Number of Questions: 180
- Sections: 2
- Timing: 4 hours (2 x 2 hours with a 1 hour break in the middle)

- Location: Pearson Vue Test Centres, accessible to Bangladesh
- Content: Understanding of the full range of conditions and presentation that may be encountered in the Emergency Department

It is also **held twice a year – in January and September**. Exam fee costs around £ 460-554.

Part 3 (OSCE)

The MRCEM OSCE is the final exam needed to gain Membership of the Royal College of Emergency Medicine. It evaluates a trainee's clinical and communication skills to confirm they are prepared for advanced training. The Royal College has received approval from the GMC to update the MRCEM OSCE marking system, moving from checklist-based to domain-based assessment—aligning it with the current FRCEM OSCE format.

The exam at a glance –

- Exam Type: Practical Clinical
- Exam Format: Objective Structured Clinical Exam (OSCE)
- Sections: 16
- Timing: 2 hours, 42 minutes (16 x 8 minutes stations with 1 minute reading time each and 2 x rest stations)
- Locations: London (UK), Kuala Lumpur (Malaysia), Chennai, Hyderabad, and Kochi (India)
- Content: Clinical and communication skills

Frequency of the OSCE exams vary from centre to centre. A candidate has to check the availability through the website (https://rcem.ac.uk/examination-calendar-and-fees/).

More including all the details can be found here - https://rcem.ac.uk/exam-mrcem/

MRCPCH

Paediatricians attain full membership of the RCPCH (Royal College of Paediatrics and Chid Health) and earn the MRCPCH title after successfully completing four distinct postgraduate medical examinations.

These exams are a standard requirement for all paediatric trainees in the UK. Additionally, a growing number of paediatricians worldwide take the MRCPCH exams to validate their clinical standards or fulfill requirements within their own training programs. It is a great way to enter into the UK healthcare system as an IMG.

As already mentioned, MRCPCH has 4 parts – 3 theory exams and 1 clinical exam.

Foundation of Practice (FOP)

This tests the knowledge of doctors seeking to provide clinical care for children. It covers a wide range of the conditions that are frequently encountered.

The exam at a glance –

- lasts 2 hours.
- used to be called MRCPCH Part 1A.
- 100 SBA questions in the FOP examination.
- questions cover one aspect of the topic. Such as:
  - choose the most likely diagnosis from the following
  - choose the best treatment for each of these children
  - choose the organism which matches most closely each of the following case scenarios.

Theory and Science (TAS)

TAS tests basic scientific, physiological and pharmacological principles of clinical practice and of evidence-based practice.

The exam at a glance –

- lasts 2 hours.
- used to be called MRCPCH Part 1B.
- there are 100 SBA questions in the TAS examination.
- questions cover one aspect of the topic. For example:
  - choose the most likely diagnosis from the following.
  - choose the best treatment for each of these children.
  - choose the organism which matches most closely each of the following case scenarios.

Candidates can apply to take FOP and TAS on the same day; FOP is always in the morning, and TAS in the afternoon.

Applied Knowledge in Practice (AKP)

AKP tests a candidate's knowledge, understanding and clinical decision making abilities based on a standard of someone entering their core specialist training and is part of the MRCPCH exam.

It comprises two exams, each of which is 2 hours 30 minutes and taken on the same day. There are 120 SBA questions in the AKP exams; 60 in each exam.

MRCPCH exams have three *Diets* each year for all three theory exams, FOP, TAS and AKP. These take place across the UK and in countries around the world. Most candidates sit their theory exam in a dedicated test centre. Some are eligible to use remote invigilation instead. Since Bangladesh doesn't have a dedicated test centre, it is eligible for using remote invigilation. FOP, TAS cost £ 435 each while AKP cost £ 835 for appearing exams from Bangladesh.

MRCPCH Clinical Examination

When a candidate is ready to take the MRCPCH Clinical exam, he or she can sit for it at a hospital-based exam centre, available in the UK and other select countries. However, daily capacity is limited, with only a fixed number of candidate slots. The exam assesses a wide range of paediatric skills through 12 different stations, each presenting a unique scenario and assessed by a separate examiner. The exam is not available in Bangladesh and a candidate has to go overseas. The exam alone can cost around £ 855-1155.

MRCPsych

Paper A

It covers the scientific and theoretical aspects of psychiatry.

The exam at a glance –

- 3 hour written exam
- total 150 questions
- two-thirds multiple choice questions (MCQ)
- one-third extended matching item questions (EMI)

Paper A usually has 3 *Diets* each year – **April, July, November**. Fee ranges in between £ 565-627. The exam is held online and can be taken from Bangladesh through Pearson Vue Centres.

Paper B

MRCPsych Paper B examination tests a candidate's ability of critical reasoning and clinical knowledge on a higher level.

The exam at a glance –

- 3 hour written exam
- total 150 questions
- two-thirds – clinical topics
- one-third – critical review

Paper B also usually has 3 *Diets* each year – **February, May, and October**. Fee ranges in between £ 508-564. The exam is held online and can be taken from Bangladesh through Pearson Vue Centres.

Clinical Assessment of Skills and Competencies (CASC)

The CASC exam follows a format similar to the OSCE (Objective Structured Clinical Examination).

It consists of two separate circuits, each comprising individual stations designed to assess various clinical competencies:

- In the morning circuit, a candidate will have 4 minutes to read the instructions and 7 minutes to carry out the task.
- In the afternoon circuit, a candidate will be given 90 seconds for reading the instructions, followed by 7 minutes to complete the task.

The full CASC examination includes sixteen stations in total:

- Five stations are dedicated to History Taking, which also involves assessing risk.
- Five stations focus on both Physical and Mental State Examination, including evaluating a patient's capacity.
- Six stations are centered on patient Management.

As it is a clinical exam, it can only be availed in a clinical settings. Currently this exam is held in the UK, Singapore, and middle-east (Qatar, Doha). Regular checking of the website for seats and availability is recommended. Fee ranges between £ 1123-1620.

All the details can be found in this link https://www.rcpsych.ac.uk/training/exams

Conclusion

Becoming a member of the Royal College is another feather in the crown for a practicing physician. This article should act as a comprehensive guide to pursue this august achievement. Wishing all the success to those ambitious doctors who are going to achieve this goal.

Monthly Scientific Seminar Organized by OGSB, Dhaka at Milon Hall, Bangladesh Medical University

Glimpse of SQUARE Life Science Ltd. (Pabna Unit) Visit by Doctor's from Rajshahi Medical College & Hospital

Celebration of World Mother's Day on 11 May 2025 at Khulna

Glimpse of Intern Reception Program at Rajshahi Medical College & Hospital

National Workshop on "Clinical Epilepsy & EEG Interpretation" at Khulna Specialized Hospital.

Scientific Seminar on ''What's New in GINA 2025" at Dhaka Medical College Hospital

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