

# MEMORY AIDS FOR MEDICAL STUDENTS



## INTRODUCTION

### ***Problems with many memory aids:***

1. It is often almost as hard to remember many of the memory aids as it is to remember the original facts.
2. Most mnemonics contain excessive information rather than selecting the main facts.
3. The most important/common facts are often found late in a mnemonic with rarer facts featured more prominently because they fit in better with the mnemonic.
4. These mnemonics are often used excessively, including where understanding or logical frameworks are more useful.

An example of a mnemonic that I found useful as an intern is as follows:

The treatment of asthma = ASTHMA

A= Adrenergics

S= Steroids

T= Theophyllines (although not used as much now though)

H= Hydration

M= Mask

A= Antibiotics if necessary.

This type of mnemonic exhibits the following important characteristics.

1. It is simple and easy to remember as the letters represent a word relevant to the issue in question. It is therefore impossible to forget.
2. The mnemonic contains the important details only rather than nuances and trivial items relevant to specific contingencies.
3. The list of therapeutic options follows the sequence normally utilized in treating asthmatic patient's i.e.,
  - a. **Adrenergics** (inhaled Salbutamol etc.) are the first line of therapy for mild asthma and also for more severe asthma in the form of nebulisations or IV therapy.
  - b. A second line choice of therapy is **steroids**. On an outpatients basis inhaled steroids represent second line therapy and of course systemic steroids are utilized in the emergency situation.
  - c. **Oral theophyllines** represent another line of therapy in these patients and, in the emergency situation, intravenous aminophylline is utilized. These drugs are not used much now, but they form part of the original mnemonic, for illustration purposes.
  - d. **Hydration** is essential to prevent inspersion of airway mucus in patients with asthma. This is particularly important in the emergency situation where intravenous hydration is crucial.

e. Using the word **mask** rather than oxygen reminds the attending physician that one should consider chronic CO<sub>2</sub> retention and utilize a low flow (24%) oxygen mask in those patients who are at risk of hypoventilation if high flow oxygen is used.

f. Infections commonly precipitate asthma and therefore **antibiotics** should be utilized if that situation is present.

4. The memory aids utilized here have the following characteristics:

1) They are selected as being easy to remember. They utilize either repetitive letters (e.g. AAA), or simple words (e.g. ASTHMA in the example above or LEAD for lead poisoning), simple poems (e.g. the six major causes of interstitial lung disease in section 2) or simple sentences where each word represents part of the relevant disease (e.g. the word "medical" causes of abdominal pain in section 3). It is essential because of these facts these memory aids are simple and easy to remember, particularly in stressful situations such as exams, emergencies and out of hours consultations at times of busyness and fatigue.

2) These memory aids list only the major causes. No all-inclusive list is ever required to be memorized. In exams you will almost certainly be cut short after you get beyond the first three or four major answers to any question. The major facts are what individual clinicians carry with them and, when they have exhausted this list (which they will by definition do only infrequently) they find it safer to consult the referenced text than to trust the deeper recesses of their memory.

3) In all of these examples of memory aids the most important facts are listed first. Thus whether in an exam situation or a clinical situation you will not be thinking of less common answers first.

4) Memory aids are not listed here in those areas where understanding or logical framework are more useful. There a clear understanding of the process is more helpful, that should be used instead of a memory aid.

#### ***How to generate your own memory aids:***

Within the constraints listed above, you will no doubt find it useful to generate your own memory aids in different clinical situations. You will find it most helpful to include names, faces and places with which you are familiar in your own memory aids. You should also remember classical cases that you have seen and visualize these cases when you think of the relevant disease. If you create a mental image, make sure it has action - that is proven to make it easier to remember. So visualize an active scene, not a static one, and make it bizarre if possible.

Within this document sufficient space has been allowed for you to make your own notes and diagrams and to add or subtract to each list. This booklet does not include exhaustive lists of causes, treatments etc. Exhaustive lists have been published elsewhere and readers are advised to consult those publications if such lists are required.

It will be very unrewarding for you to try to read this booklet from beginning to end at one sitting and expect to assimilate more than a fraction of the information. Each section contains relevant memory aids, descriptions of processes and logical frameworks for understanding medicine

which should be consulted in the context of clinical case material plus relevant textbooks. The student is then in a position to commit the information to memory in the best possible way.

The following memory aids were either generated by myself or given to me by others. You will find some more useful than others, feel free to take and use those that are helpful. They are not re-checked and updated, so the responsibility for doing that is yours.

## **GASTROENTEROLOGY:**

### HISTORY AND EXAMINATION

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#### **Causes of a massive spleen = MMM**

Myelofibrosis

Myeloid leukaemia (chronic)

Malaria

#### **Causes of abdominal distension = FFFFF**

Fat

Fluid

Faeces

Foetus

Flatus

#### **Causes of weight loss with a normal appetite**

Thin Can Still Die

TH = thyrotoxicosis

IN = Infections e.g. parasitic

CAN = cancer

STILL = steatorrhoea

DIE = diabetes mellitus

#### **Causes of atrophic glossitis = AAA**

Anaemia (iron, B12, folate)

Antibiotics

Avitaminosis (B2, B3, B12)

### MALABSORPTION

#### **Bacterial reasons for malabsorption = BB**

B12 is consumed

Bile salts are deconjugated

#### **What is absorbed in the terminal ileum? = BB**

B12

Bile Salts

**Bruising in flanks = AA**

Acute pancreatitis

Aortic aneurysmal rupture (retroperitoneally)

**Whipples disease = malabsorption plus a PLAN**

Pigmentation

Lymphadenopathy

Arthritis

Neurological changes

DIARRHOEA

**Infectious diarrhoeas to consider in a patient who has been overseas = ABCDEFG**

Amoebic dysentery

Bacillary dysentery

Cholera

'D'yphoid

E Coli (eg. traveller's diarrhoea)

Food poisoning

Giardia

**Treatment of ulcerative colitis = SSSS**

Supportive (eg. fluids etc.)

Steroids (local initially)

Salazopyrine

Surgery

**Small bowel obstruction with no scars = CLAN**

Crohn's disease

Lymphoma

Acid fast bacilli

Neoplasia

**"Medical" causes of abdominal pain (to be considered after the "surgical" causes have been excluded).**

Angie's Addicted Family Cat Let Her Sick Purple Hen Die on the Kitchen Table.

Angioedema (familial)

Addison's disease

Familial Mediterranean fever

Calcium disturbances (e.g. hyperparathyroidism)

Lead poisoning

Herpes zoster (pre-rash)

Sickle cell crisis

Porphyria  
Henoch-Schonlein purpura  
Diabetes mellitus (e.g. hypoglycaemic episodes)  
Kidney failure (uraemia)  
Tabes (tabetic crisis)

### HEPATOBIILIARY DISEASE

#### **Causes of gallstones = SSSS**

Solute  
Stasis  
Seeding

#### **Causes of hepatitis = ABC (hep virus) then DIAL for help**

Drugs (alcohol, toxins, drugs)  
Infection (I mononucleosis, amebic)  
Autoimmune  
Leptospirosis (has also meningoencephalitis, renal dysfunction)

#### **Incubation periods**

Hepatitis A = 2-6 weeks  
Hepatitis B = 2-6 months

#### **Worsening ascities = TTT**

Tumour (eg. hepatoma)  
Thrombosis of portal vein  
Tuberculosis

#### **Primary biliary cirrhosis associations = MMM**

Middle aged female  
antiMitochondrial antibody  
M antibody (IgM)

#### **Chronic pancreatitis – associations = ABCD**

Abdominal pain  
Booze  
Calcification on x-ray  
Diabetes mellitus

#### **Post-operative jaundice = ABCD**

Anaesthetic (halothane)  
Bile duct tied off / obstructed  
Calculus left behind  
Drugs

**Relapsing jaundice = RAID**

Relapsing hepatitis

Alcoholic

Intermittent

Drugs

**Persistent hepatitis antigen = CCCC**

Carrier

Congenital Disease

Chronic active hepatitis

Cirrhosis

**Results of portal hypertension = HHH**

Haemorrhage

Hypersplenism

Hepatic fetor and hand flap (portosystemic encephalopathy)

**NEUROLOGICAL**

Causes of coma - cerebral or extracerebral

**CEREBRAL = FETCH**

Fit (convulsion)

Encephalitis

Trauma

Cancer

Haemorrhage or other cerebrovascular accident

**EXTRACEREBRAL = SUGARS**

Septicaemia

Uraemia or other major organ failure

Glucose low

Risky drugs

Sodium low or other metabolic change

**Alternative = AEIOU**

Accident (trauma, cerebrovascular)

Epilepsy

Infection (intra and extracranial)

Overdose (self-induced)

Uraemia and other metabolic causes (diabetes, Addison's disease, hypothyroidism, hypoxia, and other organ failures)

**Fainting on neck turning = CC**

Carotid sinus hypersensitivity

Cervical spondylosis

**Global brain disease = PUPS**

Perseveration

Upward gaze failure

Palmo-mental reflex

Synkinesia

CRANIAL NERVES

**Unilateral Ptosis**

Pupil dilated = third nerve

Pupil constricted = Horner's syndrome

Brain stem diagram

Courses of the second, third and seventh cranial nerves

**Features of bulbar disease = DD**

Dysarthria

Dysphagia

MOTOR CHANGES

**Side effects of Levodopa = LEVODOPA**

Liver dysfunction

Extra – blood (positive Coombs) gout, flushes

Vomiting, nausea, diarrhoea

Ocular – glaucoma

Dyskinesia

On – off phenomenon

Personality changes

Arrhythmias and hypertension

**Causes of peripheral neuropathy = ABCDE**

Alcohol and other drugs

B1, B12 deficiency

Cancer

Diabetes

Exotic (lead, diphtheria, leprosy)

**Raised intracranial pressure triad =**

Headache

Vomiting  
Papilloedema

## ENDOCRINE

### **Causes of galactorrhea = PPP**

Physiological

Pituitary (tumours or stalk rupture)

Pharmacological (alpha methyldopa, maxolon/stemetil, phenothiazines, oestrogens)

## DIABETES MELLITUS

### **Symptoms of hypoglycaemia = SCAR**

Sweating

Confused

Abdominal pain

Respiratory rate increases

### **Diabetic vascular disease = AA**

Angiopathy

Atheroma

### **Unusual causes of diabetes = ABCDE**

Acromegaly

Bronze diabetes (haemochromatosis)

Cushings disease

Drugs (steroids, thiazides)

Esoteric

### **Failure to control diabetes = III**

Infection

Insulin resistance

Incidental disease (A to E as above)

### **Treatment of hypersmolar non-ketotic diabetic state**

- half strength saline

- half strength insulin

### **Symptoms of Addison's disease = "The 4 Ps"**

Pooped

Pewking

Pigmented

Posturally hypotensive

**Features that precipitate Addison's disease - SSS**

Stress

Septicaemia (eg. meningococcal)

Surgery of the adrenal gland

**Multiple endocrine adenomatosis syndrome = PPPPP**

Parathyroid

Pituitary

Pancreatic islets (ZE)

Pheochromocytoma

Thyroid (medullary carcinoma)

**Hand features in hyperthyroidism = CATS**

Clubbing

Acropachy

Tremor

Sweaty and hot

**Medullary carcinoma of the thyroid = CCC**

C-Cells

Calcitonin

CEA

**Features of hypothyroidism = CCC**

Clinical

Cholesterol increased

CPK

**Features of hypercalcaemia = Stones, Bones, Moans, Groans, Thrones and Psychological Overtones**

Stones = renal or biliary

Bones = bone pain due to osteodystrophy

Moans = peripheral pain (eg. muscle pain, pseudogout)

Groans = abdominal pains due to pancreatitis, peptic ulcer, pancreatic adenoma (.....etc)

Thrones = polyuria [using the 'throne' ie. toilet]

**Causes of short stature =**

(achondroplasia, Down's syndrome, vitamin D-resistant Ricketts)

**Non-drug causes of SIADH = TTT**

Tumours (intrathoracic)

Trauma to brain (trauma, stroke, infection)  
Tuberculosis

**Abnormal hirsutism = ABCD**

Acromegaly  
Birth tendency  
Cushing's disease  
Dilantin and other drugs

Virulism = congenital, ovarian, adrenal, drugs

**MUSCULOSKELETAL**

**Causes of acute arthritis = pus, blood, crystals, crud**

Pus = septic arthritis  
Blood = haemarthrosis  
Crystals = gout or pseudogout  
Crud = all the connective tissue diseases

**Connective tissue diseases = seropositive (rheumatoid arthritis or seronegative (RAPE)**

Reiters-reactive  
Ankylosing spondylitis  
Psoriasis  
Enteropathic (Crohn's ulcerative colitis)

ie. ask about bowels, back, skin, clap

**Causes of a false positive rheumatoid factor = SSSSSS**

Sarcoidosis  
Still's disease  
SLE  
Scleroderma  
SBE  
Septic

**Difference between Still's disease and adult rheumatoid arthritis = SMARTS**

Systemic features  
Mono-oligarticular  
Anterior uveitis  
Rheumatoid factor negative  
Two years old (median age)  
Salmon pink rash

**Features of Reiter's syndrome = DACS**

Discharge or diarrhoea  
Arthritis  
Conjunctivitis  
Skin disease

### **Temporal arteritis**

Muscle aches  
Eye changes  
Jaw claudication  
ESR

### **Associations with dermatomyositis = CCC**

Carcinoma  
Cardiac disease  
Connective tissue disease features eg. Raynaud's

## **HAEMATOLOGY**

### **General Values**

Normal MCV = 75-100  
Normal Blood differential = 60/30/6/3/1  
60% neutrophils  
30% lymphocytes  
6% monocytes  
3% eosinophils  
1% basophils

### **Causes of an ESR over 100 = MM, CA, TB,TA**

MM = Multiple myeloma  
CA = Carcinoma  
TA = Tuberculosis  
TA = Temporal arteritis

### **Blood groups to know**

Individuals have antibodies against the groups that they do not have themselves  
Universal donor = O negative  
Universal recipient = AB

### **Causes of eosinophilia = APPLES**

Allergies (eczema, allergic rhinitis, asthma)  
Parasites  
Pulmonary disease (eg. eosinophilic pneumonia)  
Lymphoma

Eosinophilic leukaemia and other leukaemias  
Secondary carcinoma

**Causes of non-megaloblastic macrocytosis = HHHHH**

Hepatic disease  
Hypothyroidism  
Hodgkin's disease  
Haemolytic anaemia  
Hydantoin

**Causes of anaemia = reduced production or increased loss**

*Reduced production =*

A) THE FACTORS (iron, B12, folate, vitamin C, protein)  
B) THE FACTORY (Marrow -leukaemia, lymphoma, myelofibrosis, carcinoma, myeloma)

*Increased loss*

A) OUTSIDE THE BODY (haemorrhage)  
B) INSIDE THE BODY (HHH) Haemorrhage, Haemolysis, Hypersplenism

**Causes of target cells = SLIT**

Splenectomy  
Liver disease  
Iron Deficiency  
Thalassemia

**Causes of pancytopenia**

Same as anaemia

**Abnormal findings in polycythaemia**

Ascites in hepatomegaly (cor pulmonale)  
Palpable kidney (renal carcinoma)  
Splenomegaly (polycythaemia rubra vera)  
Others

**Complications of busulphan therapy = PPP**

Pigmentation  
Platelet count falls  
Pulmonary fibrosis

**RENAL / ELECTROLYTES ETC**

**Low sodium = observe potassium**

If low or normal = SIADH  
If high = Addison's disease

**Chronic renal failure is a syndrome of uraemia, anaemia and hypertension.**

**Skin changes in uraemia = PPPP**

Pruritis

Pallor

Petechiae

Pigmentation

**Causes of polyuria = DDDD**

Diabetes Mellitus

Diabetes insipidus (including psychogenic polydipsia)

Dialysis list (chronic renal failure)

D - vitamins (hypercalcaemia)

**Causes of jaundice with acute renal failure (excluding haemolysis) = HIT**

Hepato-renal syndrome (especially cirrhosis)

Infections (eg leptospirosis)

Toxins (eg. CCL4, paracetamol)

**Treatment of chronic renal failure prior to dialysis**

Antihypertensives

Antacids

Allopurinol

Antibiotics

Appropriate organ therapy (eg. joints, parathyroids, blood etc.)

**Causes of chronic renal failure = CHOPIN TWINS**

Chronic glomerulonephritis

Hypertension

Obstruction

Podagra

Ischaemia

Nephritis

Chronic pyelonephritis

Hypercalcaemia

Organ disease (eg. hepato-renal)

Phenacetin

Iatrogenic

Nephrotic syndrome

**Complications of peritoneal dialysis = PPP**

Peritonitis

Pneumonia (Diaphragmatic splinting)

Protein loss

**Haemolytic-uraemic syndrome = PPP**

Paediatrics

Pregnancy

Pill (contraceptive)

**Causes of renal stones = SSS**

Solute concentration

Seeding

Stasis

**Abnormalities in the eyes in a patient with polyuria**

Diabetic fundus, cataracts

Pituitary disease (visual fields, exophthalmos)

Calcium changes (band keratopathy)

Chronic renal failure (hypertension, anaemia)

### **METABOLIC DISORDERS**

**Hyperlipidemia = 2ABC**

2A = beta lipoprotein = cholesterol

### **MISCELLANEOUS**

#### **SHOCK**

Is either....

a) hypovolemic

(loss of blood outside the body, eg GI bleed, or inside, eg intraabdominal bleed or big fracture, or loss of fluids eg. diarrhoea, burns)

b) normovolemic ABC

A - anaphylactic

B - bacterial eg. septic shock

C - cardiogenic.

**Causes of vascular instability leading to purpura = SSS**

Senile

Steroids

Scurvy

**Causes of erythema multiformae**

Simplex

Streptococcus

Sulphurs

Sedatives  
SLE  
Leukaemia

**Nail changes in psoriasis = PSO**

Pitting  
Subungal hyperkeratosis  
Oil drop

**Causes of unnatural pigmentation =**

Addison's disease  
Haemochromatosis  
Prophyria

**Black and white skin = vitiligo with Addison's disease**

**Photosensitivity = SAND**

SLE  
Albinos  
Niacin deficiency (pellagra)  
Drugs (eg. Tetracyclines, phenothiazines, thiazides, sulphonamides)

**Pemphigoid = older (legs larger\_**

**Pemphigus = usually younger (mouth, minisize)**

**Causes of leg ulcers = VINEGAR**

Venus  
Ischaemia  
Neoplasia  
Esoteric (eg. neuropathies)  
Gumma  
Anaemia  
Rare (eg. Pyoderma gangrenosum)

**Eye examination = CAPER**

Confrontation  
Acuity  
Pupil and corneal reflexes  
Extraocular movements  
Retina

**Conjunctival sludging = Sick Ribs Die Crying**

Sickle cell disease  
Riboflavin deficiency

Diabetes Mellitus  
Cryoglobulinaemia

**Causes of night blindness = retinitis pigmentosa and vitamin A deficiency**

**Causes of scotomas**

Bilateral = TT

Tobacco - alcohol

Toxic (methyl alcohol, other drugs)

Unilateral = VD

Vascular (haemorrhage, obstruction)

Demyelination

**Steroid side effects**

"I was hopping mad"

Infection

Wasting

Adrenal insufficiency

Sugar disturbances (diabetes)

Hypotension

Osteoporosis

Peptic ulcer and pancreatitis

Proximal myopathy

Incidental (fat face, hirsutism)

Necrosis of the femoral head

Glaucoma / cataracts

Mad (psychological changes)

**Tricyclic antidepressant overdose = CRASH**

Coma

Respiratory depression

Arrhythmias

Seizures

Hyperpyrexia