

## 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 weigh 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 methyl dopa, 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 hypersosmolar 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

Phyroid (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