POST OPERATIVE CARE OF THE SURGICAL PATIENT AND SURGICAL COMPLICATIONS

POST OPERATIVE CARE:

The care of a patient who has had a surgical procedure in order to prevent, detect and or handle complications that may arise, with main objectives being reduction of morbidity and mortality from surgery and anesthesia.

PHASES OF POST-OP CARE:

Three phases are considered.

Phase I - **Immediate post-operative period**

#  This can be in either the recovery ward or the Intensive Care Unit

 (ICU) depending on the patients needs and the nature of the

 operation done.

1. The recovery ward
2. Usually located within the theatre complex
3. Staff involved – trained nurses assisted by an anaesthetist
	1. Equipment – Monitoring facilities which should include today Pulse Oximeters in addition to e.g. BP machines etc.

 - The recovery room should be ready to deal with

 immediate life threatening complications e.g.

 hemorrhage, cardiac arrest.

 - Possibility of immediate re-access to theatre.

1. ICU or HDU (High Dependency Unit)
	* + For patients who need intensive monitoring and life support.
		+ The ICU should be easily accessible from theatre
		+ ICU care involves anaesthetist (or intensive care specialist), the surgeon and well trained ICU nurses, other supportive staff (lab technicians, physiotherapists etc.)

Phase II - Intermediate

This could be in the ward for a patient who was in the recovery ward or sometimes continued in the ICU or HDU for some category of patients.

Phase III - Late

This involves rehabilitation and follow-up.

## DOCUMENTATION AND POST-OPERATIVE INSTRUCTIONS

Proper documentation by the surgeon is important.

The operation notes should be written clearly and should be comprehensive.

# The data should include:-

**Patient details-** Name, age, sex, hospital registration number

**Date of operation**

**Diagnosis**

## Operation

**Incision/approach**

## Details of the procedure

* + - Operative findings(intra-operative)
		- Actual surgical procedure performed (detailed)

Name of **the surgeon**(s) and **assistant**(s)

Name of **anesthetist**(s)

Type of **anesthesia** used e.g. general, LA, regional etc.

Name of **scrub nurse**

The **post operative instructions** to be followed by others looking after the patient should include:

- The observations to be taken and how often e.g. blood pressure, respiratory rate, pulse, temp ¼ hourly x 2 hours, then hourly for 4 hours etc.

-Special investigations required e.g. X-rays of chest,

Ultrasound, blood gases etc.

-Post-operative prescriptions for:-

* + - Drugs (for pain, antibiotics, etc.)
		- Fluids I.V or per other routes
		- Transfusions etc.

-Other instructions e.g.:-

* + - Feed or not – Nil by mouth
		- Prop – up in bed
		- Elevation of limbs etc.

## POST-OP CARE THEREFORE INVOLVES;-

#### MONITORING

Is necessary to recognize or detect early any physiological derangements or surgical complications that may occur.

It involves:-

a) Clinical observations

* + - Vital signs taken e.g. ¼ hourly or even continuously
		- General examination of the patient
		- System oriented approach – physical examination

of the various organ systems.

However parameters normally monitored

 E.g. CVS - Pulse (rate, volume, rhythm)

* + - Bp
		- ECG

 Renal eg urine output

 CNS level of consciousness/alertness etc

 RS – RR etc. (Blood gases etc.)

 Others output from drains

b) Lab data

 e.g. – Hb or Hct

 - Blood gas analysis

 - Urea and electrolytes + creatinine

c) Radiological assessments

 Eg – CXR’s

 - Ultrasound scans

 - CT Scans, MRI etc

Other special tests where indicated e.g. Echocardiography

#### PAIN RELIEF

Need for pain relief

a) Patient comfort and avoidance of adverse psychological effects.

 It’s inhuman for anyone to be allowed to undergo pain if something can be done. “Comfort always, cure sometimes”.

b) Avoidance or prevention of pulmonary complications

 Pain poor respiratory effort poor effective coughing Inability to clear the airways of secretions (low tidal volume)

 Alveolar collapse – lung collapse

 - Bronchopneumonia (-hypoxia etc)

c) Avoidance of DVT (Thrombo-embolism).

 Pain leads to reluctance to move venous

 Stasis DVT formation Thrombo-embolism

METHODS OF PAIN RELIEF

1. Intramuscular inj. of opioids or NSAIDS

2. Local anesthesia

 - Infiltrations

 - Nerve blocks

 - Epidural

#### FLUID. ELECTROLYTES. NUTRITION

# Consideration of this is important in patients who:-

* 1. Have had GIT surgery
	2. Are very sick – who are unlikely to start feeding immediately.

### In such cases

1. I.V. fluids
2. Parenteral nutritional support may be necessary
3. Other forms of enteral feeding e.g. NG tube, jejunostomy etc

I.V. Fluids:

Most adults will require about 3L/day given usually as 500mls/4 hourly e.g. as 5% dextrose alternating with Hartmans solution.

NB- with increased losses e.g. from drains this is adjusted upwards accordingly. Electrolytes: Esp K+ is important in patients who are not feeding as urine losses continue hence K+ supplementation may be necessary. Nutritional Supplements:

If the non feeding phase is prolonged especially with pre-existing malnutrition, parenteral feeding through a central line to give nutritional supplements or other form of nutritional supplementation is necessary.

#### OTHERS

i) **ANTIBIOTICS**

- As prophylaxis (depending on indications)

- As treatment

ii) **TRANSFUSIONS**

iii) **H2 Antagonists/proton Pump inhibitors for stress ulcers**.

iv) **ANTICOAGULANTS**

 Prophylaxis for thrombo-embolic disease

#### POST –OPERATIVE COMPLICATIONS

“Regardless of how technically gifted, bright, and capable a surgeon is, surgical complications are a virtually guaranteed aspect of life”.

“The possibility of post-operative complications is a part of every surgeon”s thought process – something with which all surgeons will be required to deal’.

“Strive for the best but be prepared for the worst”.

- After every operation, complications may occur which if not recognized early and acted upon can cause morbidity or even death.

- Complications may be related to the disease process per se, or errors of omission or commission in technique.

Can be classified as

1. a) General complications related to any surgical procedure or anesthesia

b) Complications associated with specified operations

1. Classify by organ systems e.g. Renal, cardiac etc
2. Chronologic approach e.g. early, intermediate, or late

#### GENERAL POST OP COMPLICATIONS

1. **HAEMORRHAGE**

 Post-operative bleeding may be -internal

 -External (wound)

 - Early

 -Delayed

Reasons for post-op bleeding

 i, Poor surgical technique

 ii, Coagulation problems

* 1. Thrombocytopenia (after over-transfusion of stored blood CPB)
	2. DIC
	3. Missed mild coagulations defects (underlying medical conditions).

\* Some surgical conditions are associated with increased tendency to bleeding e.g. obstructive jaundice, post open heart surgery.

\* Prevention of bleeding can be achieved by:

 a) Careful Pre-operative assessment (good history, physical exam and

 investigations to rule out bleeding disorders (congenital or acquired)

 and proper pre-operative preparation of patients.

 b) Proper surgical techniques.

2. **THROMBO-EMBOLIC EVENTS**

# Incidence not clear but may be responsible for 12 – 15% of deaths in

critical care situations.

Majority of cases death occurs before diagnosis of DVT is made.

\* High index of suspicion and prevention are vital.

#### Aetiology:

Stasis, vessel injury, hypercoagulable states. Virchow’s triad may exist in surgical conditions e.g.

Patient undergoing surgery who is supine for long time, paralysed during anesthesia hence pooling of blood in soleal sinuses with vasodilator effect of G.A (Stasis) coupled with hypercoaguable state in some surgical conditions, especially obesity, cancer, chronic venous insufficiency, long operations.

### Signs of DVT may include tenderness, swelling, pain on movement and fever.

# Diagnosis: - Doppler U/S + Venography

# Prevention 1) Early post-op ambulation

 2) Use of compression stockings

 3) Low dose peri-operative heparin.

**3. INFECTION**

# Introduction of aseptic techniques, sterilization of surgical equipment,

clean operating environment and antimicrobial agents has reduced post-op infection rates, though infection still remains a major concern.

Infection can be = Local wound infection (superficial surgical site infection) = Deep incisional surgical site infection = Organ/space surgical site infection e.g. peritonitis,

 Sub-phrenic abscess, empyema thoracis. = Systemic

#### Aetiological factors

a**) Patient factors**

Age, nutrition, diabetes mellitus, smoking, obesity, co-existent infections at another site, colonization with particular micro-organisms, immunosuppression, length of preoperative stay, blood transfusion, anemia, malignancy.

**b) The operation**

Category of surgical procedure, skin asepsis, pre-op shaving, duration, antibiotic prophylaxis, sterilization of equipment, FB in surgical site, drains, poor hemostasis, dead space, tissue trauma etc.

Prevention – Patient preparation

 - Surgical techniques

 - Prophylaxis if indicated

4**. WOUND COMPLICATIONS**

 Can be – Haematomas and Seromas

 Sepsis – discussed above

 Dehiscense – commonly occurs after one week after surgery.

 Can involve – skin only – simple repair

 Fascial layer – which problems and

 1) Requires operative repair

 2) Often associated with infection

5. **RESPIRATORY COMPLICATIONS**

####  Causes of post-operative respiratory failure a) Ventilatory failure Loss of Ventilatory drive e.g.

- Sedative drugs (e.g. Midazolam, Anesthesia)

- Opioids (e.g. Morphine)

I, Airway obstruction

- Reduced level of consciousness

- Trauma - Neck hematomas e.g. in thyroid surgery

ii, Respiratory muscle failure

- Persistent muscle relaxant effect

- Electrolyte abnormality e.g. hypokalaemia

- Splinting of the diaphragm e.g. due to pain, raised intrabdominal pressure, subphrenic abscess etc.

iii, Pulmonary pathology (Pneumothorax, haemothorax, pleural effusion, bronchospasm).

 b) Failure of Gas Exchange

#####  Alveolar causes e.g Atelectasis, Pneumonia, Aspiration, Pulmonary oedema( fluid overload, LV failure, ARDS and Pulmonary haemorrhage

 Vascular causes e.g Pulmonary embolism

6 **GIT COMPLICATIONS**

 May include

i, Post-op nausea and vomiting, may lead to a, aspiration

b, stress on suture line

 Should be controlled by anti-emetics.

ii,Paralytic ileus – which can be due to

* 1. infection eg peritonitis
	2. mechanical after gut handling
	3. electrolyte imbalance eg low K+

iii, Hiccups

iv, Stress ulcers

7. **RENAL COMPLICATION**

 Oliguria or even ARF may occur

 Can be due to – low cardiac output (caused by hypovolaemia or cardiac

 failure). Hypovolaemia may be due to blood loss, dehydration.

8. **OTHERS**

 - CARDIAC – Low cardiac output

* 1. arrhythmias
	2. myocardial infarction

 - CNS - Disorders of consciousness

 - Confusion

 - Psychiatric disturbances,

 - CVA