



THE UNIVERSITY OF
JORDAN

Preoperative Assessment, Evaluation, & Pre-medication.

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Anesthesia Management Record



CLN F223/4

Patient Name:
 Age: Sex:
 Hospital No. :
 Date:

I- Pre-Operative Assessment Note

Patient seen in Pre-operative Anesthesia Clinic? YES NO

A- History

Previous Anesthesia: <i>Complications?</i> <i>Airway Difficulty?</i>	Cardiovascular:	Weight kg Height: cm
	Respiratory:	Age:
Allergies:		Past Med. Hx.:
Medications:		Fasting Status:
		Other:

B- Physical Examination

Vital Signs:	Cardiovascular:	Other:
B/P		
Pulse	Respiratory:	
Temp		
R/R	Airway: <i>H&N movement:</i> <i>Mouth Opening:</i> <i>Tracheal Shift?</i> <i>Mallampati class:</i> <i>Thyromental Distance:</i> <i>Teeth:</i> <i>Other:</i>	
Pain		

C- Investigations:

Full Blood Count:	Chest X Ray:	Other:
Electrolytes:		
Arterial Blood Gases:	ECG:	

D- Assessment Outcome:

ASA:	<u>Possible Modalities of Anesthesia</u>	<u>Anesthesia & Pain management Plan discussed with Patient/ Family?</u> <input type="checkbox"/> YES <input type="checkbox"/> NO	<u>Consent taken yet?</u> <input type="checkbox"/> YES <input type="checkbox"/> NO
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E- PLAN:

Anesthetist's Name:	Signature :	Date/ Time:
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Learning Objectives

- After attending this lecture, student is expected to be to:
 1. Know how patient's medical status is evaluated.
 - Proper history
 - Physical exam
 - Lab. Investigations
 - Review medical records
 - Consider if patient needed further testing or consults to develop anesthesia plan.
 2. Know about the proper airway examination tests

Learning Objectives

3. Evaluation of patients with known systemic disease like:

- HTN
- DM
- Thyroid disease
- Cardiac disease
- Pulmonary disorder.

4. ASA Risk Classification:

Learning Objectives

5. Identify ASA fasting guidelines
6. Identify patients at risk of peri-op. aspiration
7. Anti cholinergic premedication
8. Perioperative corticosteroid coverage
9. DVT / PE prophylaxis
10. Antibiotics prophylaxis

Venue

- Preoperative visit to patient in the ward.
- Preoperative anesthesia clinic.

History (Know your patient)

- Patient Profile:
 - Name/Age /Gender/ Weight/Height
 - Type of surgery
 - Fasting hours
- Presenting Complaint & its history.

History (Know your patient)

- Focused review of systems

Cardiovascular

IHD (CP /Angina/ stent)
CHF (PNDs/ orthopnea)
Exercise intolerance
Palpitations

Respiratory

Asthma
COPD
OSA
Recent URTI/LRTI
Cough/ sputum
Smoking

Neurologic

-Epilepsy
-CVA/TIA
-Denervation disease

History (Know your patient)

GIT

GERD
PUD
Hiatus Hernia
Intestinal obstruction.

Renal

CRF
ARF
On dialysis

Blood disorders
Antiplatelet
Anticoagulation

History (Know your patient)

- Past history:
 - Medical history
 - (DM, thyroid, myasthenia graves, etc)
 - Medications (e.g. B-blockers, statins)
 - Allergies (e.g. penicillin)
 - Surgical hx.

History (Know your patient)

- Anesthetic Hx

- Previous anesthesia
- Type of anesthesia
- Complications: difficult airway management/delayed emergence / PONV)-
- Family hx.

Physical Examination

- General appearance
- Vital signs
- Cardiac exam

Check rate and rhythm
Auscultate heart sounds

- Respiratory exam

Look for signs of resp. distress
Respiratory rate
Auscultate lung sounds

- Neuro exam

Mental status
Gross motor/ gross sensory

Airway Examination

- Inspection:
 - Facial asymmetry
 - Jaw protrusion
 - Jaw recession.

Airway Examination

1. Mallampatti classification

- It categorizes the ratio of tongue size to the oro-pharynx
- Has low positive predictive value

class	Structures identified when pt seated
1	Tonsillar pillars, Uvula , soft & hard palate
2	Uvula ,soft & hard palate
3	Base of uvula ,soft & hard palate
4	Only hard palate is can be seen



Airway exam

2. Mouth opening
3. Teeth (prominent upper incisors/ loose or mobile)
4. Palate (high arched)
5. Ability to protrude the lower jaw beyond the upper incisors (jaw protrusion), upper lip biting

Airway exam

6. Neck exam

Look for short or thick neck

Look for neck Range of movements

Look for neck masses

tracheal shift



Airway exam

7. Three distances

Thyro-mental distance

- ✓ It describes the distance between the mentum & thyroid notch
- ✓ It helps in determining how readily the laryngeal axis will fall in line with the pharyngeal axis
- ✓ It is normally > 6cm in adults .

#Sterno- mental distance

- ✓ It describes the distance between the mentum & suprasternal notch
- ✓ If this distance less than 12 cm it predicts difficult intubation

#Inter-incisor distance

- ✓ It describes the distance between the upper and lower incisors
- ✓ It is normally 4.5 cm

Method of Assessment (L.E.M.O.N)

L

Look externally

face / mouth opening/ teeth / tongue

E

Evaluate the three distances

interincisor / thyromental / thyrosternal distance

M

Mallampatti score (3 or 4)

O

Obstruction (presence of any obstruction like:

peri-tonsillar abscess , thyroid mass , VC nodule)

N

Neck mobility

Investigations

- Blood tests*
- CXR*
- ECG*
- Pulmonary Function Tests*

Investigations-Lab

- CBC

Advanced age/ Anemic pt/ Bleeding /chronic disease (kidney liver heart)

- KFT

Diabetics/ HTN/ chronic disease / on medications like diuretics , digoxin ,ACEI

- Sugar

Diabetics / HTN/ chronic disease / on steroid

- LFT

Liver disease / malnourished pt

- Coagulation

Bleeding disorder/ Kidney disease/ Liver disease/ pt on anticoagulants

Investigations

CXR

✓ Indicated in

- patients with respiratory or cardiac disease
- smokers
- patients with recent LRTI

ECG

✓ Indicated in

- patients with respiratory or cardiac disease
- Advanced Age (M: 55y F: 65y)
- Any patient with CAD risk factors : (HTN, DM, hyperlipidemia , exercise intolerance)

Investigations

Pulmonary Function test:

- Identifying patients at respiratory risk, evaluating the risk, and finding modified factors to decrease risk

Indicated in:

- obstructive lung disorders
- restrictive lung disorders
- neuromuscular disorders

Includes mainly

- Spirometry
- ABGs

Evaluation of patients with **known** systemic disease

- HTN
- DM
- Thyroid disease
- Cardiac disease
- Pulmonary disorder

HTN

- Elevated blood pressure levels between 120-129/ and less than 80.
- Hypertension stage 1 is 130-139/ or 80-89 mmHg.
- Hypertension stage 2 is 140/90 or mmHg or more.
- Hypertensive crisis is higher than 180/120 or higher.
- Measurements of BP Association of preop BP and complications ... autoregulation
- Effect on different organs ... renal function, previous strokes or MI
- Medications B-blockers, diuretics, possible side effects e.g., hyperkalemia

DM

- Blood glucose measurements... controlled or not HbA1c
- More frequent measurement week before surgery .. Dose adjustment to establish normal blood level
- Risk factor of IHD
- Diabetes gastroparesis .. Delayed emptying
- Autonomic dysfunction ... more risk of hypotension
- Type of hypoglycemic agents oral vs insulin ... short vs long acting
- Long acting sulfonylureas ... 48-72 hr, short acting Sulfonylureas and Metformin ... night before surgery

Hypothyroidism

- TSH and T4 should be checked ... euthyroid .. Dose adjustment
- Might have low cardiac output ... prone to hypotension
- Delay metabolism ... delayed emergence
- Sluggish bowel movement ... oral medications

Hyperthyroidism

- Increased catecholamine HTN and arrhythmias ... A.fib
- GA might precipitate thyroid storm ... confusion, agitation, decreased consciousness, fever, HTN, arrhythmias, tremor
- Medications ... adjust the dose preop.

Pulmonary disease

- Obstructive vs restrictive lung disease
- Active symptoms limiting activity
- Upper abdominal surgeries and thoracic surgeries
- Radiographic, PFT, ABGs
- Increased risk: $FEV_1 < 70$ percent predicted, $FVC < 70$ percent predicted, FEV_1/FVC ratio < 0.65

Category	Health status	Comment
ASA 1	Healthy	
ASA 2	Mild systemic disease	Has a well-controlled disease of one body system; cigarette smoking ; mild obesity, pregnancy
ASA 3	Severe systemic disease	Some functional limitation; has a controlled disease of more than one body system or one major system
ASA 4	Severe systemic disease that is constant threat to life	Has at least one severe disease that is poorly controlled or at end stage; possible risk of death
ASA 5	Moribund patients who are not expected to survive without the operation	Not expected to survive > 24 hours without surgery; imminent risk of death
ASA 6	A declared brain-dead patient whose organs are being removed for donor purposes	

EMERGENCY ?!

ASA 1 - E

ASA 2 - E

ASA 3 - E

ASA 4 - E

ASA 5 - E

ASA 6 - E

Major surgery

- Defined as highly invasive surgery commonly needs



Blood
transfusion



Invasive
monitor



Post op.
ICU

Informed Consent

<p>The following potential complications of General Anesthesia or Regional Anesthesia have been thoroughly explained to me:</p> <ul style="list-style-type: none"> Nausea, vomiting Headache Sore throat Damage of the teeth and eyes Backache Paresis – Post Peripheral Nerve Block after regional anesthesia Aspiration (if not fasting) Cardiac Arrest Brain Damage Nerve damage after Spinal Injection Nerve damage after Epidural Injection Bleeding or hematoma at the site of spinal or epidural injection. Infection at the site of spinal or epidural injection or meningitis. Venous thrombosis Chronic pain at the site of spinal or epidural injection. Respiratory and cardiovascular depression. 	<p>لقد تم شرح إحصائية حدوث الاحراض الجانبية التالية من اجراء التخدير بما تواجه:</p> <ul style="list-style-type: none"> القيء، الغثيان، القيء الصداع التهاب الحلق تلف الأسنان والعيون الآلام في الظهر مرحلة ما بعد انحصار العصب المحيطي - شلل جزئي الارتجاع سكتة قلبية تلف في الدماغ تلف في الاضصاب بعد: تخدير الحبل الشوكي تلف في الاضصاب بعد: تخدير فوق الجافية نزف في مكان التخدير الحبل الشوكي او فوق الجافية التهاب في مكان التخدير الحبل الشوكي او فوق الجافية تجلط دموي الم مزمن في مكان التخدير الحبل الشوكي او فوق الجافية تأثير في عمل الجهاز التنفسي او القلب الرضائي
<p>I understand that the anesthetic plan chosen by my anesthesia team is the most appropriate in my case and that my anesthetic management will be provided by adequately privileged doctor. I further understand that whenever the type of anesthesia needs to be altered from what has already been discussed, it is for the purpose of my safety and wellbeing. I authorize the anesthesia team to transfuse blood and blood products based on my clinical needs during the treatment procedure</p>	<p>لقد فهمت بان التخدير سيتم اعطائه من قبل طبيب مؤهل من فريق التخدير كما سوف طبيب تخدير باختيار طريقة التخدير الأكثر امان وأكثر فاعلية كما اني اعلم انه اذا استدعت الظروف قد يتم تغيير طريقة التخدير عما تمت مناقشته مسبقا، فانه سيكون الهدف من ذلك سلامتي وصحتي. أخول فريق التخدير بنقل الدم ومشتقاته اذا استدعت الحاجة الي ذلك أثناء الاجراء الطبي.</p>
<p>I understand that although favorable results can be expected, they cannot be guaranteed. There is no guarantee against poor results or complications of anesthesia.</p>	<p>أعلم انه بالرغم من توقع نتائج مرجوة، فانه لا يمكن ضمانها. حيث انه لا ضمان من عدم وقوع مضاعفات أو نتائج سلبية من التخدير.</p>
<p>I confirm that I have read and fully understand the above.</p>	<p>أؤكد أنني قرأت وفهمت كل ما ورد أعلاه.</p>
<p>Anesthetist Name & Signature Date: Time:</p>	<p>اسم وتوقيع طبيب التخدير التاريخ: الوقت:</p>
<p>Patient's/ Guardian's Signature الوصي بالمريض / الوصي القانوني</p>	
<p>Patient Guardian's Relationship to Patient and his/her name صلة الوصي القانوني بالمريض واسمه يرجى التوضيح</p>	

<div style="display: flex; justify-content: space-between; align-items: center;">  <div style="text-align: center;"> <p>مستشفى الجامعة الأردنية Jordan University Hospital</p> <p>CLN 0232</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>Patient ID Label</p> <p>Patient Name :</p> <p>File no.:</p> </div> </div>	
<p>WRITTEN CONSENT FOR ANAESTHESIA</p>	<p>الموافقة الخطية على التخدير</p>
<p>I (Name) Address confirm that Dr. has explained to me that I will require: Anesthesia under the care of anesthesia team Headed by..... For (operation/procedure) To be performed on (date of operation/procedure)</p>	<p>أقر أنا (الاسم) التعريف قد شرح لي أني بحاجة إلى: التخدير تحت اشراف فريق التخدير برئاسة الدكتور من اجل (العلاجية/ الاجراء) وذلك بتاريخ:</p>
<p>The Anesthesia proposed for this operation / procedure is: (tick as appropriate). <input type="checkbox"/> General Anesthesia <input type="checkbox"/> Combined Spinal Epidural (CSE) <input type="checkbox"/> Spinal Anesthesia <input type="checkbox"/> Epidural Anesthesia <input type="checkbox"/> Peripheral Nerve Block (Plexus) <input type="checkbox"/> Sedation <input type="checkbox"/> Local Anesthesia I understand that Anesthesia through the plan might change according to the condition of operation and patient's safety.</p>	<p>الرجاء وضع علامة على نوع التخدير المقترح للعمليات الاجراءية: <input type="checkbox"/> التخدير العام <input type="checkbox"/> تخدير فوق الجافية المزوجة <input type="checkbox"/> تخدير الحبل الشوكي <input type="checkbox"/> تخدير فوق الجافية <input type="checkbox"/> تخدير الاضصاب الطرفية <input type="checkbox"/> التشنج الوبائي والتويم العميق <input type="checkbox"/> تخدير موضعي. علمًا انه قد يتغير نوع التخدير المقترح، ويتحول الى نوع آخر حسب متطلبات العملية وسلامة المريض.</p>
<p>The Anesthetist has fully explained to me the technique and the associated risks (both during the administration of the anesthesia and during the recovery period), benefits and possible alternatives. I have been given an opportunity to ask questions and all of my questions have been answered fully.</p>	<p>لقد تم شرح لي طريقة التخدير بدقة وافصلا عن كيفية التخدير المشفر اليه والمخاطر المتعلقة به أثناء إعطاء التخدير وأثناء الإفاقة من التخدير وفوائد التخدير والبدائل الممكنة. وقد تم إعطائي الفرصة لطرح الاسئلة وسمعت الاجابة على اسئلتى بشكل واف.</p>
<p>The following specific high risks were explained in my case :</p>	<p>لقد تم شرح لي جميع المخاطر المتعلقة بالمخاطر المحددة المتعلقة به في التالي :</p>

Plan

- After patient consents to proceed with surgery and anesthesia.
- Decisions about:
 - Further consultations.
 - Further investigations.
 - Patient's medications.
 - Preparation of blood and blood products.
 - Type of admission (if seen in clinic)
 - ICU bed reservation.
 - Fasting time
 - Ordering Pre-medication.

Prevention of aspiration ASA **Fasting** Guidelines

Clear fluid	2 hours	Water , Fruit juice without pulp,
Milk		
Human	4 hours	
Infant formula	6 hours	
Light Foods	6 hours	Fruits , juice with pulp, Vegetables
Heavy foods	8 hours	Fatty meals , meats

Premedication

- Anxiolysis
- Prevention of aspiration
- Anti cholinergic premedication
- Perioperative corticosteroid coverage
- DVT / PE prophylaxis
- Antibiotics prophylaxis

Anxiolysis

- ❑ Visit and interview and establishing good rapport with patient.
- ❑ Medications:
 - Benzodiazepines:
 - Diazepam,
 - Lorazepam,
 - Temazepam,
 - Midazolam: I.V., short acting
 - Opioids:
 - Morphine
 - Pethidine

Perioperative Aspiration

- Risk factors:
 - Fasting state: incomplete
 - Surgical condition:
 - Intestinal obstruction,
 - Severe Pain
 - Medications: opioid use
 - Patient related
 - Obesity ,
 - Gastro-esophageal Reflux disease (GERD)
 - Hiatus Hernia,
 - Pregnancy

Drugs used to decrease incidence of aspiration

□ H2 Blockers

- Classes include Cimetidine, Ranitidine (Zantac), Famotidine.
- They block histamine receptor ability to induce acid secretion by proton pump.
 - they consequently reduce gastric fluid volume and acidity

□ Antacids

- Given ½ an hour before induction : 30 ml of sodium citrate
 - Reduce gastric acidity only

□ PPI

- Omeprazole, the first drug in this class, also include lansoprazole and esomeprazole .
 - ✓ Binds to H⁺ / K⁺ pump on parietal cell.
 - ✓ Given 40 mg IV 30 min before surgery .
 - ✓ Reduce both volume and acidity

□ Metoclopramide

- Act on dopamine receptors
- increase gastric motility & lower esophageal sphincter tone
- Reduce gastric fluid volume only

However

- Guidelines do not recommend the routine use of these drugs and limit their use for patients at risk .

Anticholinergic Premedication

□ Antisialagogue effects

- Was routinely used
- Now indicated in:
 - ✓ awake fiber-optic intubation ,
 - ✓ intra oral surgeries.
 - ✓ Bronchoscopic surgeries.

□ Vagolytic effect

- It blocks Ach effect on SA node.
- Used to prevent reflex bradycardia in
 - ✓ Traction of viscera or extraocular muscles
 - ✓ Carotid sinus stimulation
 - ✓ Repetitive doses of succinylcholine

Perioperative Steroids

- Any patient taking corticosteroids for long period needs preoperative steroid supplement to cover stress of anesthesia & surgery.
 - Especially those on higher doses & for long duration (>1 month).

WHY ???

Because of the high possibility of Adrenocortical suppression
in these patients

Prophylaxis against Deep vein thrombosis and Pulmonary embolism

Risk factors for intraoperative DVT

- History of DVT
- **Hypercoagulable states:** Antithrombin III deficiency, Protein C deficiency, Protein S deficiency, Plasminogen activator deficiency.
- Prolonged preoperative immobility.
- Oral contraceptives, pregnancy, post-partum state.
- Long bone fractures.
- Pelvic and lower extremity surgeries.
- Carcinoma
- Heart failure
- Obesity
- Smoking
- Prolonged surgery
- *Etc.*

TABLE 1. Degree of Thromboembolism Risk in Surgical Patients Without Prophylaxis

Risk level	Calf DVT	Proximal DVT	Clinical PE	Fatal PE
Low risk Minor surgery in patients aged <40 y with no additional risk factors	2%	0.4%	0.2%	<0.01%
Moderate risk Minor surgery in patients with additional risk factors Surgery in patients aged 40–60 y with no additional risk factors	10%–20%	2%–4%	1%–2%	0.1%–0.4%
High risk Surgery in patients >60 y or with additional risk factors (eg, prior VTE, cancer)	20%–40%	4%–8%	2%–4%	0.4%–1.0%
Highest risk Surgery in patients with multiple risk factors (age >40 y, cancer, prior VTE) Hip or knee arthroplasty, hip fracture surgery	40%–80%	10%–20%	4%–10%	0.2%–5%

Adapted from Geerts WH, Heit JA, Clagett GP, et al. *Chest*. 2001;119(suppl 1):132S–175S.

Recommendations for prophylaxis against DVT

- **Very low risk patients:** Early ambulation after surgery.
- **Low risk patients:** mechanical prophylaxis with intermittent pneumatic compression Intermittent pneumatic compression (IPC).
- **Moderate risk patients:** low molecular weight heparin (LMWH), unfractionated heparin (UH), or mechanical prevention with IPC.
- **High risk patients:** Low Molecular Weight Heparin or Unfractionated Heparin plus elastic stockings or IPC.

Antibiotics Prophylaxis

- ❑ Prevention of surgical site infection:
- ❑ Prevention of infective endocarditis
- ❑ Prevention of infection in immunocompromised patients.

Classification of Operative Wounds and Risk of Infection

CLASSIFICATION	CRITERIA	RISK (%)
Clean	Elective, not emergency, nontraumatic, primarily closed; no acute inflammation; no break in technique; respiratory, gastrointestinal, biliary and genitourinary tracts not entered	< 2
Clean-contaminated	Urgent or emergency case that is otherwise clean; elective opening of respiratory, gastrointestinal, biliary or genitourinary tract with minimal spillage (e.g., appendectomy) not encountering infected urine or bile; minor technique break	< 10
Contaminated	Nonpurulent inflammation; gross spillage from gastrointestinal tract; entry into biliary or genitourinary tract in the presence of infected bile or urine; major break in technique; penetrating trauma < 4 hours old; chronic open wounds to be grafted or covered	~ 20
Dirty	Purulent inflammation (e.g., abscess); preoperative perforation of respiratory, gastrointestinal, biliary or genitourinary tract; penetrating trauma > 4 hours old	~ 40

Information from Cruse PJ, Foord R. The epidemiology of wound infection. A 10-year prospective study of 62,939 wounds. Surg Clin North Am 1980;60:27-40.

Commonly used surgical prophylactic antibiotics

- Intravenous 'first generation' cephalosporins - cephazolin or cephalothin
- Intravenous gentamicin
- Intravenous or rectal metronidazole (if anaerobic infection is likely)
- Oral tinidazole (if anaerobic infection is likely)
- Intravenous flucloxacillin (if methicillin-susceptible staphylococcal infection is likely)
- Intravenous vancomycin (if methicillin-resistant staphylococcal infection is likely)

❖ Best time for administration is within 60 minutes before the surgery.

- Two exceptions for this rule
 - (1) Vancomycin: before 2 hours
 - (2) Use of Tourniquet : prior to inflation

❖ Re-dosing concept in long surgeries
(Cefazolin given every 4 hours)

Prophylaxis against infective endocarditis

- Invasive Dental procedures:
 - ❑ Strep. Viridans group
 - 1st line: Amoxicillin/ Ampicillin (2gm iv/im)
 - 2nd line: Cephalexin / Cephazolin (1gm i.v/i.m)
 - ❑ Other contaminated procedures: according to likely pathogen
 - ❑ Immunocompromised patients: according to the most likely pathogen

Thank You!

