

The second speaker for the day is Miss Supriya Sharma.

She is the senior nursing officer at TMS with a vast experience of more than 16 years.

She has been in the critical care area and she has been caring for patients with lung cancer throughout whenever she is in the ICU.

She is also the infection control link nurse for ICU. I welcome Supriya.

My name is Supriya Sharma.

Today I am going to discuss about management of acute emergencies in lung cancer or nursing perspective.

In this I am going to cover all lung cancer emergencies, their diagnosis, sign and symptoms, investigation, medical and nursing management.

So as Madam discuss about everything about what is lung cancer.

So at the end we will see some nursing diagnosis which are related to lung cancer emergencies.

So as Madam said the lung cancer is most diagnosed and deadly cancer in the world. worldwide there are 2.2 million cases in 2020 where 1.8 million death was there.

So this number only shows that lung cancer is most dangerous and complicated cancer.

So sometimes these patients because of this tumor present with some emergencies.

We know says play a very critical role in lung cancer emergencies.

Do you have any idea about what is oncological emergency? Can anyone tell me what is oncological emergency?

No, the definition of oncological emergency is oncological emergency can an acute or potentially life threatening condition.

It is the result of cancer itself or sometimes it may be because of the treatment. These emergencies are divided into metabolic, hematologic and structural emergencies.

Because of these emergencies are life threatening that is why these emergencies required a rapid treatment to avoid the death and the life threatening conditions.

All these emergencies can present significant challenges on us.

Oncological critical nurses are crucial to recognizing and managing the sign and symptoms of oncological emergencies.

Now we will see some emergencies which we notice in lung cancer.

These are superior vena cava syndrome, pulmonary embolism, plural effusion, pericardate and component, spinal cord compression, massive mitrices, airway obstruction, spontaneous pneumothorax and isophageal fistula.

Now one by one we will go through this. Do you have any idea what is SVC syndrome or have you seen any patient with SVC syndrome? Anyone?

Yes. Can anyone tell what is superior vena cava syndrome? Compression of superior vena cava is in.

Yes. So superior vena cava syndrome or SVC syndrome is the obstruction or compression of the superior vena cava which impairs the return of deoxygenated blood from head, neck and upper extremities to the heart, which may lead most of complication. So causes of SVC's in lung cancer is because of the tumor or solan lung force which are compressing the superior vena cava. And the clot formation in the veins, this clot might be because of our long term catheters like treatment or central lines which may induce any blood clot which is obstructing the superior vena cava.

Have you seen this, I know that all of us have seen this patient. What are the common signs or symptoms which we can notice? Facial edema.

Yes. These patients are mostly present with the upper extremities swelling. The mostly swelling is on the face, neck and upper limbs because of this swelling. This patient may have dyspnea, shortness of breath. There will be because of cerebral edema, this patient may be present with headache, dizziness or altered ventilators.

Sometimes sinosis will be there and even we can notice prominent veins on the head, neck and chest.

So some investigation which we perform are CT scan MRI or X-ray. These investigations helps us to find out where the clot is.

So now treatment modalities, the medical management mostly aims to constrict the tumor and to release the obstruction which will help for the patient.

So the main line of treatment in superior vena cava syndrome is chemotherapy and radiation therapy which we see in the tumor and release that obstruction on the superior vena cava.

Also if there is clot in the superior vena cava, the placement of stent will help to relieve that obstruction.

Sometimes we keep these patients on anti-coagulation therapy which will help to dissolve that clot and also this will help to further clot formation.

We give steroids to relieve the inflammation and sometimes diuretics because of the swelling which means sometimes we are giving fluid overload that time this diuretics may help.

Also monitoring and follow of this patient with CT or MRI to monitor whatever intervention have you done, these are helpful or not.

Now our main responsibility we play is a very critical role in management of superior vena cava.

So nursing intervention includes positioning of the patients.

Always keep it in mind as these patients have the upper body edema.

So release that pressure on the head index always keep this patient head elevation.

Head elevation will release that stress on the upper body.

Then monitor respiratory status because of swelling there will be respiratory distress.

So always keep this patient, always start oxygen with oxygen mask or high concentration mask.

If more respiratory distress manage this patient with hyponezyl canola because of edema there will be difficult intubation.

So always try to avoid the intubation but if patient is critically ill then we have to manage this patient with intubation but with all the facility which are available for the difficult intubation.

Then administer medication as per doctor's orders means corticosteroids or diuretics to reduce the swelling.

People for diagnostic testing means if patient requires CT scan or MRI then always keep emergency tips ready to shift this patient.

Pain management with painkillers as per doctor's order.

Education of the patient and patient family about the sign and symptoms worsening or it is increasing.

Then collaborate with the other team members for if the patient is required chemotherapy they collaborate with the other patient.

One question whenever we receive this patient there is one alertness in our mind. What is that alertness?

Yes, avoid peripheral line on the upper extremity because of the increased venous pressure on the upper body.

That's why always avoid to take IV lines on the upper extremity.

Avoid extro-m-t.

Avoid evicandulation on the upper extremity.

So next complication is pulmonary embolism.

Pulmonary embolism is the blockage of the pulmonary arteries.

This blockage is embolism because of there is clot formation or DVTs which are in the leg or pain base.

This clot travels from this leg amine pelvis to the pulmonary artery and which may block the lungs vessels.

And there will be pulmonary embolism.

So in lung cancer patient may develop pulmonary embolism because of hypercoagulability due to tumor invasion or because of chemotherapy.

So in terms because of embolism patient may develop shortness of breath, chest pain, rapid heart rate.

The chest pain will be because at the time of the breathing there will be low oxygen levels.

So investigation, CT pulmonary angiography.

This is gold standard.  
We call it CTPR the short form.  
It will help to locate where the clot is.  
Ventilation perfusion scan.  
This is the non-invasive scan which will help to measure the blood flow and air flow in the lungs.  
Then chest takes care of the embolism.  
Laboratory test or diagnostic test, D-dimer test or ABG will show the hypoxia or CO<sub>2</sub> or O<sub>2</sub> level.  
And to find out the DVT we will do ultrasound.  
Then medical management.  
Management of pulmonary embolism is dependent on the hemodynamic stability of the patient.  
If patient is hemodynamically stable with pulmonary embolism then it is called as low risk pulmonary embolism.  
For this we are using anticoagulation therapy with the help of low molecular weight, heparin or sometimes oral therapy.  
But if patient is in high risk means if there are clinical symptoms like hypotension or shock symptoms  
that time we have to start patient on thrombolysis therapy with the help of unfractionated heparin.  
But if patient is contraindicated for heparin means if there is any contraindication patient is having bleeding tendency  
then we are doing embolism with the help of surgery or interventional therapy.  
But if patient is having on anticoagulation therapy or thrombolysis what care or what the things we have to look for?  
Bleeding. Always keep watch on patients investigation to see if there is any chance of bleeding.  
So responsibilities of nurses always we know that DVT can develop pulmonary embolism.  
So our management start immediate after post stop means always keep this patient try to mobilize this patient at an early stage  
which will avoid the DVT.  
So responsibilities of nurses, assessment of patient monitor clinical of pulmonary embolism including breathing difficulty or chest pain  
regular checkup of oxygen level and saturation blood pressure.  
Intervention like administering anticoagulation medication provide oxygen therapy, patient is breathless  
then support mobility to prevent further clot formation.  
Means if patient is having any bleeding with anticoagulation therapy always keep watch on coagulation factor.  
Nowadays we are doing one test which is very famous and we are using in critical patients that is TAP. That is thromboelastography. In thromboelastography we measure this means nowadays we are going for shopping.  
You choose the one shop or you will think about the mall or online shopping which you will prefer online shopping  
because you are getting everything at one place.  
So that is why this test report is like that only.  
In one report only we get the idea that we have what we have to transfuse to the patient.  
Means if there is a time dysfunction then we give that means there is a problem in the coagulation factor so we transfuse FFP.  
If there is a problem in K time that means there is problem in the fibrinogen so we give cryoprecipitate.  
If there is problem in the amplitude that means there is problem with thrombocytopenia so we transfuse platelets.  
So with this one report only we get the idea that we have to transfuse to the

patient.

That is why nowadays this is very famous and helpful investigation for management of pulmonary embolism or patients with bleeding.

Education and support these patients teach patients about recognizing symptoms of pulmonary embolism and the ability and vice-un-life changes.

That means early mobility of the patient even emotional support to cope with the situation.

Now plural effigens all of your expert in managing these patients you have seen on a regular basis this patient.

What is plural effigens?

Plural effigens is accumulation of fluid in the plural space.

Because of the tumor invasion in the plural or post radiation or chemotherapy complication there will be plural effigens.

So because of the fluid in the plural cavity patient by doing shortness of breath, chest pain, heaviness in the chest, persistent curve.

Now on excultation we find out that reduced breath sounds at the affected sides.

Investigation chest X-ray will help to identify the fluid accumulation and lung compression.

Cities can be give us idea about the detailed imaging access to access the tumor involvement.

Management of a plural effigens.

Now you will tell what we are doing in plural effigens?

Yes.

The first choice if a patient is having breathlessness around UAG or on X-ray if we find that there is plural effigens.

The first choice is to represent this means tapping of the fluid and then chest tube insertion if fluid is more.

Then plural effigens is the injecting a sterile talcum powder or doxy sealing in that picture shows that second picture is because of plural effigens.

And with the fluidization we can avoid the reaccumulation of the fluid.

Then targeted therapy to shrink the tumor that is chemotherapy or radiation therapy.

Symptoms controls for oxygen to manage the breathlessness that is oxygen therapy and other treatment.

Now now say management.

Now see management includes the first assessment of the patient.

Every time our first responsibility to assess the patient which will help us to get the idea how the patient is.

So monitor respiratory status to observe the dyspnea or reduce breath sounds.

Measure vital signs and oxygen saturation regularly assess for pain level.

Intervention means a patient is for tapping or for isolating insertion.

Always keep everything ready and assess the doctor with under a septic technique.

Ad

If air leak is there always watch for the patterns of the tube.

If picked is there that is the short tethator that is why sometimes that may get clot or the placement will be affected.

So always keep watch on the insertion side.

Patient education teach patient to recognize the worsening symptoms.

Next is the pericardyl tamponade.

We have seen now pleural effusion that means there is the accumulation fluid in the pleural cavity.

Now pericardyl tamponade is the accumulation of fluid in the pericardyl space.

Because of you can see that picture because of the fluid in the pericardyl space there is the compression on the heart.

So it is very complicated things to manage and we need a special assessment for the patients.

Because of accumulation of fluids the reason may be because the reason for pericardyl tamponade is because of the tumor which is compressing the heart and sometimes because of the treatment related complications.

So sign and symptoms these patients are present with be triad.

What is be triad?

Be triad is the set of three signs.

These patients present with jugular vein distention, muffled heart sounds and there will be hypotension.

Also one special sign is there that is pulse paradoxus.

What is pulse paradoxus?

There is drop in blood pressure during inspiration.

Actually what happens in pericardial tamponade because of the fluid which is collected in the pericardial space that on the inspiration there is ventricular volume collapse and there will be decrease in cardiac output.

So patients may develop hypotension during inspiration.

Also because of collection of fluid, patient will develop dyspnea and tachycardia also.

Investigation, the key investigation in cardiac tamponade is 2D echo which is shown the fluid accumulation and because of accumulation of fluid there will be diastolic collapse of the chambers.

Chest x-ray we show cardiac silhouette not as there on x-ray we can see water bottle like appearance of the heart.

In seeking we show low voltage or low voltage of Q wave is complex and electrical alternans.

Pericardial synthesis means after tapping of the fluid we can save this fluid for malignancy markers.

Management of pericardial tamponade because of the fluid collection we have to tap that fluid and to avoid the re-accumulation of the fluid sometimes doctors keep the drain in C2 means there will be pericardial puncture will be there.

Systemic chemotherapy for or radiotherapy for malignancy corticosteroids or non-steroidal anti-inflammatory medications for inflammation.

Inter-pericardial clasp therapy or pericardial window surgery for recurrent cases.

In pericardial window doctors are taking small incision on the chest and they will take out the small part of the pericardium to release that obstruction.

Nursing management continuous monitoring of the patient's vital signs heart rate to detect any hemodynamic instability as is for symptoms like big pulse or pulse paradoxus which will help us to get the whole idea of the patient's vitals.

Oxygen therapy administer supplemental oxygen to improve tissue oxygenation and reduce respiratory distress.

If patients are having heart burden or cardiac burden try to avoid intubation and if patient is having low cardiac activity we are giving NIV for these patients or high flow nasal cannula.

Fluid management while giving fluid may be because of hypotension we try to manage these patients with IV fluids but always keep it in mind that cardiac because of cardiac output is low.

If patient is having hypotension then start with vasopressors.

Prepare patients for any procedure like pericardial synthesis.

Then assist during all the procedure under aseptic technique post procedure monitoring of the patients for a because of pericardial puncture will be there so watch for arrhythmias, recurrence of effusion or infection monitor for the chest drainage, pain and anxiety management of the patient and patient's family.

Collaborate with other healthcare system for other intervention.

Now move on to our next complication that is spinal cord compression.

The name only give us idea that because of the tumor invasion in the spinal cord or vertebra there will be compression on the spinal cord.

This is life threatening condition because of if it gets untreated then patient may develop permanently spinal cord injury and which will be neurological effect on the patient.

So, sign and symptoms because of the spinal cord involvement there will be back pain which is severe and localized.

Weakness or paralysis in the limbs numbness and tingling in the extremities because of spinal cord involvement.

If there is bladder or bowel involvement then there will be difficulty during hitting and incontinence will be there.

Wasn't pain by lying down or because while coughing or sneezing.

The main investigations which we perform in this patient is MRI CT scan X-ray and neurological examination.

In neurological examination always watch for sensory and the motor power of the patients always monitor for the GCS.

Medical management the main treatment in spinal cord compression is to give steroids or radiation therapy to shrink that tumor and release the inflammation on the spinal cord.

Chemotherapy if tumor is chemo sensitive then chemotherapy.

Surgical intervention like decompression surgery for the spinal stabilization pain management with analgesics for severe pain and supportive care with piezotherapy, bladder ball.

Now we are the one who are the main manager for these patients.

Early recognition of the silent symptoms for worsening of the patient with weakness or there is tingling sensation.

Arseced for bladder and bowel dysfunction pain management with medications and always with pharmacological or non-pharmacological measures.

Positioning of the patient this is very important aspect in spinal cord compression.

Because of spinal cord injury we have to keep some things in our mind that we have to protect the further injury.

So we can use a cervical collar while turning the patients.

We can use hard surface for the patients and while turning these patients we have to turn the patient in log roll position.

Log roll position that means we have to turn patient fully at one side.

We can't turn half now and half after some time and while keeping propped up the patients make the head up with the complete bed up.

Because of that we will release that make take our spinal cord in one line.

If patient has to mobilize sometimes doctor may advise to use braces means the supportive things to for the patient mobilization and always keep help of physiotherapies for the mobility and strengthening exercise.

If patient is having bladder or bowel involvement according to that we have to manage the patient.

Next complication is massive hematomas.

Massive hematomas means if patient hematomas is coughing up blood but if it is if this bleeding is more than 600 ml in 24 hours that is called as massive hematomas. The hematomas is divided in 3 mild moderate and severe if it is more less than 50 then it is mild 50 to 200 it is moderate and more than 200 it is severe.

But if it is more than 600 it is massive hematomas.

The cause is because of the tumor invasion only.

There will be science in terms like perfuse bleeding while coughing.

This may be a hypertension because of severe bleeding.

Take care there will be there.

If patient is having significant blood loss there will be there will be dizziness or fainting.

Investigation in imaging study we do x-ray which will show cavitations means hollow spaces in we can see on x-ray.

In-filtration means we can notice wild spots on x-ray.

Cities can which will locate the bleeding and evaluate the underlying malignancy.

Bronco scoping is very useful in the massive hematomas which will locate the beater with visualization, direct visualization.

Cp blood investigation like CBC coact factor to see the bleeding and abg shows the oxygen and acid base level and thromboynostography that is tagged.

Now management of hematomas.

Management of hematomas it depends on the severity of the bleeding.

If bleeding is mild means less than 600 then local measures means we do injection

tranexa.

Sometimes adrenaline stabilization which will constrict the lung vessels which can avoid the bleeding then cold saline lavage while bronchoscopy.

Now main management starts when there is excess bleeding in the lung.

So first our aim is to locate the bleeder where is the bleeder is and then wash for hemodynamic instability because of continuous bleeding patient may develop a hyperextension tactic idea.

So manage these patients with fluid, albumin infusion also with the vasopressors support if patient is very critical with hyperextension.

Then if we found where the bleeder is then lung isolation is important means while managing this patient always keep this patient the effect means where is the bleeding which lung is bleeding that lung should be at the down side to protect the lung contamination.

We can isolate the lungs with the help of bronchial blockers or we are using the balloon endotracheal care tube which will isolate the lung.

I will explain these things about after this slide.

To control the bleeding we do embolization or directly application of adrenaline with the help of bronchoscopy.

With all these measures if bleeding not get stopped then surgical intervention will be the lobectomy.

So now seeing management emergency response because of the bleeding we first we have to monitor the airway of the patient.

So ensure airway pattern see initiate emergency protocols positioning of the patient as I said always keep this position in lateral position with affected lung down.

Oxygen therapy because of the bleeding patient may have respiratory distress if patient can manage with our oxygen.

Our oxygen mask or high flow nasal cannula we can manage with that but if intubation is required we intubate this patient with dual lumen endotracheal care tube.

We can see in that picture it is low dual lumen endotracheal care tube which is saying at the lung side is patient in and that is ventilator in whichever lung we have gone to ventilate.

We are keeping that tubing intact and the other end of the tubing which we clamp which we protect the other lung to get ventilate where the bleeding is.

Positioning of the patient in lateral position monitor vital signs, continuously monitoring blood pressure, heart rate, respiratory rate.

We have to monitor these patients very closely because of this bleeding and develop severe complications with the patients.

Assist with diagnostic procedure like bronchoscopy, CT scan, administer medications as per doctor's order prepare for intervention and documenting all the intervention patient response and communicate with other health care teams.

Our next complication is a review obstruction which we face on daily basis.

A review obstruction is common complication because of lung cancer which is affecting 20 to 30% of patients.

The silent symptoms will be always difficult in breathing, there will be busy sounds, clutching of the throat and sometimes sinuses and at the end if respiratory distress is more then patient will have a respiratory arrest and there will be complicated position.

Investigation checks it to identify the medicinal widening.

Chests can give us more idea about the air vents surrounding structures.

Bronchoscopy will directly visualize the obstruction.

A BG will give us idea about the acidosis or alkalosis.

Medical management of airway obstruction after assessment of the patient if it is mild or wounded we can manage these patients with ethically nebulization with oxygen therapy.

Then do not the other causes.

A patient is vital.

Stable means the area obstruction or breathlessness is because of infection or other causes.

Consult other specialist to rule out the cause.  
 If this management patient will not get settled then call for help means our code blue system  
 and after that if patient does not get settled then intubation or important role monitor respiratory aid.  
 All these lung cancer emergencies are related with our airway so always keep watch and respiratory aid, oxygen saturation, human dynamic status.  
 Assess for signs of increased respiratory distress.  
 Ensure airway patterns means if there is lots of secretions or airway, keep the airway clear.  
 Assess for mucous plugs.  
 Positioning of the patient always keep these patients in semi-follows or follows position to promote the optimum lung expansion and reduce airway pressure.  
 Add needing the oxygen therapy.  
 First we start with oxygen mask or nasal cannula.  
 If patient get deteriorate then high concentration mask.  
 If patient will not settle with high concentration mask.  
 Nowadays we are using HFNC.  
 That is high flow nasal cannula.  
 If we use HFNC because of this will help to give 100% heated and humidified oxygen to the patients and we can give 90% of flow.  
 So nursing management prepare patient for emergency intervention manage complications like hypoxia, pneumothorax collaborate with other teams.  
 Now next complication is hemothorax is pneumothorax like we have seen a plural effusion there is collision of fluid and a pneumothorax there is collision of air.  
 So there causes will be tumor erosion, cavity lesion or treatment effects or underlie tissue.  
 Underlie tissue response.  
 Sign single because of air is there chest pain will be at the affected side.  
 Decrease breath sounds at the affected side and on examination we see percussion and shortness of breath.  
 In investigation CT scan XA we show the air in the plural cavity.  
 Vertical management like plural effusion we tap out the fluid in pneumothorax we tap out the air.  
 Oxygen therapy to give relief for desaturation or low oxygen level which will help to the absorption of air in the plural cavity.  
 Pleurodesis surgical intervention like surgical repair of the pneumothorax.  
 Nursing management continuous monitoring of the patients' position with flawless position, administer supplemental oxygen and care of ICD.  
 Esophageal fistula.  
 Fistula means there is abnormal connection between trachea and esophagus.  
 It is rare but serious complication.  
 It may lead to aspiration and this may lead to infection.  
 So this is complication.  
 Signs symptoms of an esophageal fistula is respiratory sign, aspiration of fluid or liquids, recurrent respiratory infection, dysphagia, regurgitation, pneumothorax.  
 Because of malnutrition patient may have weight loss.  
 In investigation CT scan we show the abnormality.  
 Contrast studies will help us to find out the fistula.  
 Endoscopy will help us to direct visualization of the fistula.  
 So pharmacological management for the medication for infection, airway management.  
 If there is risk of aspiration, radiotherapy to shrink that tumor and release the compression.  
 So, physical intervention in the esophageal fistula, we put a stent to release the obstruction in the esophagus and to close that fistula.  
 Nursing management to monitor the airway, administer parental or enteral nutrition to ever malnutrition or an agent to over aspiration, educate patient and patients' family, collaboration with other team members.



Till now we have seen all the emergencies which we face in the lung cancer.

We play a very vital role in this management of all these emergencies.

By assessment only, like if I am assessing these patients, I can think that they are kushto garbarhe.

By looking at the patients only we can find out that something is wrong with the patients.

So, nurses, prospective in lung cancer, critical care nurses are all we are indispensable in managing lung cancer emergencies, leveraging our specialized skills to address the life-threatening procedures.

So, our critical role is for the intervention stabilization of the patient by medications or airway management, collaborating with other team members, rapid assessment of the patient and patients.

We not only manage the patients, but also we give family support.

Our expertise ensures a prompt effective response that stabilize patients, mitigate complication and enhance overall outcomes in lung cancer.

We are the one who plays very important role in managing the lung cancer patients.

So, some nursing diagnosis which are related to lung cancer emergencies, that is ineffective airway clearance related to obstruction or airway inflammation, impaired gas exchange, acute pain, relative tumor pressure or treatment procedure, risk of impaired tissue perfusion, anxiety related to dyspnea or disease process. Then ineffective breathing pattern related to respiratory distress, risk of infection related to immunity or chemotherapy or individual procedures, impaired physical mobility because of final cooperation like complication, imbalance nutrition in cases of insufficient

physical or less than body requirement related to anaerxia risk for acute confusion related to hypoxia or metabolic imbalance.

So, when we receive the call that there we are receiving any emergency.

So, as an ICU nurse we keep some trolleys ready, some emergency things ready.

So, I want to show that this is our emergency trolley which we keep ready when we receive the call that we are receiving the patients.

For this we are keeping all the emergency things to manage the airway.

We are managing our say 7 piece for the intubation means preparation for the things, then pre-oxygenation of the patient to maintain the airway.

Then medications with parallelize the patient for intubation and sedation, positioning of the patient for the intubation, then placement of the endotracheal tube or confirmation and then post intubation care.

Here we place a very important role means we are keeping all the difficult, if patient is having difficult intubation then we keep all the difficult intubation things ready.

If you want to manage the patient with HFNC, VKIP, HFNC things ready, if there is intubation got fails we keep the patient, we keep the test of the trolley always post intubation management plays a very important role where noxes are important.

So, conclusion in acute lung cancer emergency, noxes are vital for prompt assessment, airway management and symptom control to stabilize the patient, collaboration with other healthcare team which ensure the timely intervention.

And better outcome continues monitoring helps to detect the complication in early stage and preventing further deterioration, providing compassionate patient centered care and support both patients and families during critical situations.

Thank you.