ORIGINAL RESEARCH PAPER

Physiotherapy

EFFECTIVENESS OF POST OPERATIVE PHYSIOTHERAPY AFTER EMERGENCY LAPAROTOMY TO PREVENT POST PULMONARY COMPLICATIONS AND PROMOTE EARLY MOBILIZATION" – A CASE REPORT

KEY WORDS: Carcinoma, Emergency laparotomy, Post pulmonary infections, Physiotherapy.

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ABSTRACT

Laparotomy is the traditional surgical procedure where the large incision is made into an abdomen to explore and visible the abdominal internal organs so it is also called Exploratory Laparotomy. It's main purpose is to determine the source of pain, extent of injury and perform repair of damaged organs. It is a life saving technique for cancer and tumour cases. In critical conditions, the emergency laparotomy1 is performed to save patient's life. After surgery mainly due to midline incision the patient develops restricted pattern of breathing; thereby increasing risk of chest infections, atelectasis and other post pulmonary complications. Prolonged bed rest in same position may also develop oedema, pressure sores, muscle weakness to wasting. In this case 53 years old male with known HTN was admitted with abdominal pain, on – off fever, mild dyspnea after treating the symptoms further evaluation revealed carcinoma of stomach. After stabilizing, the patient under goes emergency laparotomy. But after the surgery the patient may highly prone to post pulmonary complications. The early post operative physiotherapy plays crucial role to avert post pulmonary complications and assist in recovery.

INTRODUCTION

Carcinoma is a type of malignancy cancer that develops from epithelial cells of internal organs mainly abdomen. Carcinoma's may also spread to other parts of body or be confined to primary location. Carcinoma's are mainly due to abnormal cell division which forms as a tumour in affected area. . This disease usually grows slowly over many years. Stomach or gastric cancers is the most prevalent cancers which majorly affects inner layers of stomach. This leads to abdominal pain, bloating, indigestion, nausea, fatigue, heartburn, gastritis, dyspnea (in obese).Depending upon the size and staging of cancer the treatment is prescribed. In early stages, it can be treated by Chemotherapy, Radiation therapy with some oral medications. When the cancer is not controlled by this non invasive treatment the oncologist suggests for an emergency laparotomy.

After the surgery, the patient develops post pulmonary complications, restricted breathing pattern, wound infections. The interference of physiotherapy in post operative days reduces the prolong recovery, hospital stay and mortality rate of patients.

CASE REPORT

A 53 years old obese male with known HTN admitted with abdominal pain, vomiting, bloating, indigestion, on-off fever, mild dyspnea. The patient was first kept under O_2 inhalation and treated with antipyretics, pain medications, antibiotics, fluid management through IV. On subjective assessment the personal history states smoking, alcohol from since 8 years. Family history shows gastric cancer(father).After controlling the symptoms the further investigations revealed low HB% in CBC,US abdomen shows large mass at left hypochondrium region. Further evaluation includes upper endoscopy and biopsy which shows well differentiated carcinoma of stomach ($T_3N_0M_0$). The surgeon planned an emergency surgery to prevent from metastatic stage.

After stabilizing the patient from pyrexia and other cardinal symptoms an emergency laparotomy is planned. A routine pre operative tests and blood transfusion is done before surgery. A folley's is placed for urine collection. Sedatives and anaesthesia are injected before the procedure. In this case, the surgeon chooses midline approach. The incision is made from xiphoid process to above umbilicus. The pathological area is exposed and carcinoma is removed. After procedure a reliable closure is done. The patient is shifted to ICU on elective ventilator. After getting conscious the patient was weaned successfully and kept on O_2 mask. The conservative treatment like pain medication by epidurals, antibiotics and fluid management by IV's are prescribed. The early physiotherapy had started on POD-1.

PHYSIOTHERAPY MANAGEMENT

The post operative physiotherapy plays prime role to avert post pulmonary complications and also assists in recovery to enhance the quality of life in cancer patients. The treatment started from POD -1 in the form of chest physiotherapy[3] and general physiotherapy.

CHEST PHYSIOTHERAPY

It mainly aims to improve respiratory efficiency, promotes expansion of lungs, strengthen the respiratory muscles. It is the traditional technique used to mobilize or loose secretions in lungs and respiratory tract. It is the group of treatment practice on post operative patients.

I) Nebulizers:

Nebulizer is a type of machine that turns liquid medicine in to mist which can easily inhale by the patient. A mouthpiece is connected to the machine which allows the medicine to enter the lungs directly. In this case the nebulizer is prescribed thrice daily before chest physiotherapy which assists in mucus secreation. Budicort, Duolin, mucomix are the drugs given through nebulizer.

II) Postural Drainage

It is the technique of loosening the secretions from specific areas of lobes of lungs by gravity assisted positions to move the mucus from lungs to thorax. Postural drainage[4] is more effective when it combines with percussion, vibration, deep breathing and coughing.

III) Forced Expiratory Technique

It mainly aims to mobilize the secretions from peripheral airways to proximal airways. The patient is asked to perform 1 or 2 huffs, relaxed breathing and one or twice coughing. It also prevents bronchospams.

IV) Respirometer

It is the breathing exerciser which is specially designed with 3 chambers. It is device used to measure the rate of respiration. The patient is asked to place the mouth piece in their mouth and seal the lips then inhale slowly and deeply until the goal is reached. This exercise improves the lung capacity and prevents from lung collapse.

V) Breathing Exercises

A) Diaphragmatic Breathing

Diaphragmatic breathing is the manual inspiratory muscle

training exercise. In this the therapist is kept one hand on rectus abdominis muscle and asked to inhale deeply with nose and exhale with mouth. By this the abdomen bulges in and out which strengthens inspiratory muscles.

B) Pursed Lip Breathing

It is the type of breathing exercise where significantly improves lung mechanics, exercise tolerance, breathing pattern, arterial oxygen. The patient is asked to take deep inspiration and with the lips pursed patient is asked to expire the air. Simultaneously the therapist places the hand on patient's abdominal wall to observe the diaphragmatic movements.

General Physiotherapy

I) Active Movements

These are voluntary movements which was performed by the patient under the guidance of therapist. The patient is asked to perform the anatomical movements of both upper and lower limbs. These movements prevents stiffness of muscles and joints.

II) Turnings

Due to prolong bed rest on supine lying the patient develops pressure sores. So, turnings are suggested hourly by changing the posture on the assistance of therapist.

III) SLR & Ankle Toe Movements

Straight leg raising and strong ankle toe movements of lower limbs hourly prevents from deep vein thrombosis.

IV) Ambulation

Mobilization[2] is the low intensity activity for post operative patients which aids in co ordination and postural balance. It also improves gastrointestinal, genitourinary, pulmonary and urinary tract functions which averts prolong hospital stay. The patient performed mobilization twice on first three POD's. Later, it increases to thrice daily.

*On POD – 4 the patient is on room air.
*Above treatment plan done up to POD – 6.

DISCUSSION

The main motive of post operative physiotherapy after emergency laparotomy is to promote regular lung functioning and physical activities. The interference of early physiotherapy prevents the post operative complications like atelectasis, pneumonia, long time ventilator support, pressure sores, deep vein thrombosis, oedema, early wound healing etc. In this case study the treatment focused to drain and remove the secretions from specific area of lungs to promote saturation and prevent from secondary infections. The chest and general physiotherapy with early ambulation made the patient independent and his ADL's. Thus, the patient got discharged at POD – 7 in haemodynamically stable stage.

CONCLUSION

The early post operative physiotherapy shows effectiveness to improve pulmonary status, functional activities of patient, prevents the post surgical complications and enhances quality of life.

Conflicts of interest: There is no conflict of interest.

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