PALLIATIVE CARE IN ADRENAL METASTASIS WITH SECONDARY PLEURAL EFFUSION – A CASE REPORT

Affiliation

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Abstract

Background and Objective*: The bilateral symmetrical adrenal gland is located above the kidneys' retroperitoneal cranial poles. It makes two kinds of hormones: steroids and catecholamines. The action of these hormones on the adrenal gland regulates metabolic, cardiovascular, immune, neuronal, and mental processes in response to exogenous stress and other stimulants. Adrenal metastasis is the most common malignant adrenal lesion and the second most common tumor in the adrenal gland after benign adenomas. Autopsies are the primary source of information for these metastases.*

Methodology: *A large number of research papers, articles, books, and other materials were used to review the literature on physiotherapeutic management of adrenal metastasis with pleural effusion.*

Aim*: We aim to improve Quality of Life and decrease the above symptoms as well as reduce the recurrence of the secondary pleural effusion.*

Conclusion*: On observation, the above treatment protocol showed marked improvement in the Quality of Life, reduced breathlessness, pain and fatigue.*

Keywords: *Adrenal Metastasis, Pleural Effusion, Rehabilitation, Palliative care.*

Introduction

The bilateral symmetrical adrenal glands, located above the cranial poles of the kidneys within the retroperitoneal space. It produces two types of hormones: steroids and catecholamines. The adrenal gland controls metabolic, cardiovascular, immune, neuronal and mental processes in reaction to exogenous stress and other stimulants by the action of these hormones. The catecholamine producing adrenal medulla is neuroectodermal in origin, whereas the steroid hormone producing adrenocortical cells are derived from the adrenogonadal primordium, which descends from the coelomic wall. The human adrenal cortex is traditionally divided into three subzones: zona glomerulosa (ZG), zona fasciculata (ZF), and zona reticularis (ZR). Each zone has a distinct histology and secretes various types of steroid hormones. ZG is the origin of mineral corticoids that play a significant role with regard to blood pressure and the electrolyte balance in regulating salt and water (5). The ZF secretes glucocorticoids, which are regulated by the hypothalamic-pituitary-adrenal axis feedback loop. They play an important role in immune response and metabolism (6). The ZR is a source of androgens and precursor hormones that develops after birth.

Adrenal metastases are the most common malignant lesions involving the adrenal gland and, after benign adenomas, the second most common tumor of the adrenal gland. The main findings for these metastases are autopsy. Adrenal glands metastasis in malignant disease, which is significant given their small size. Adrenal metastasis can occur from primary tumors in the lung (39%), breast (35%), melanoma, gastrointestinal tract, pancreas, and kidney, among other locations. Adrenal metastases do not usually result in adrenal insufficiency unless they affect a significant portion of the bilateral adrenals (more than 90%). These patients may exhibit anorexia, weight loss, nausea, vomiting, abdominal pain, weakness, fatigue, lethargy, fever, confusion, and electrolyte imbalances as a result of adrenal insufficiency, and are easily confused with neoplastic disease manifestations.

There is a vast decrease in the Quality of Life in an individual with adrenal metastasis due to deterioration in their medical condition, radiation therapy and chemotherapy. As people can face many musculoskeletal and other complications due to treatment, the people face pains, reduces range of motion, weakness, fatigue, etc. The physiotherapy plays a key role in improving their quality of life. The physiotherapist focuses on improving their functional capacities, reducing pain, etc.

Case report

A 55 years old male, farmer by occupation was admitted in the hospital with chief complains of chest pain and fever with chills associated with breathlessness. Then the patient was taken to local hospital by his family, there the doctor gave him few medications which gave him relief but again he started complaining the same complains. Later he was referred to another hospital, there few investigations were carried out. The patient was admitted in hospital with same complains few months back. The patient was known case of hemiplegia since 2013 with hypertension since last 8 years. There was no such family history. In personal history, his sleep, appetite and bowel- bladder habits are normal. He was an ex-alcoholic for 10 years and left drinking after severe stroke attack. He is vegetarian and had 3.4 kg weight loss in last 10 days.

The chest pain was started gradually on the left side of the chest which was aggravating while doing self-care activities and was relieving only after rest and medication. The severity of chest pain was 4 on MCCSC. The onset of breathlessness is gradual, increased only on exertion and relieves on rest. The severity of breathlessness was Grade 1 on MMRC. On observation, the body built is mesomorph and lines attached are intercostal drainage.

On general examination, his pulse rate is 116bpm, respiratory rate is 24bpm, saturated oxygen is 96% and blood pressure is 140/90mmHg. On inspection, the pallor is present and I: E ratio is 1:1 i.e. shallow breathing. On palpation, there is tracheal shift towards right side and tactile vocal fremitus is reduced in left middle and lower zone. On percussion, there is dull note over the left middle and lower zone. Whereas on auscultation, air entry is reduced in left middle and lower zone and vocal resonance is reduced.

X-Ray, CT-Scan, Fluid analysis were the few investigations done. The X-Ray revealed, homogenous opacity, blunting of CP angle, tracheal shift towards right side. Ct- Scan noted the impression of metastasis of left adrenal gland. The fluid analysis divulged that reddish colored 10ml fluid with hazy appearance is present in the lungs, which also indicates presence of blood in the fluid. Diagnosis was done on the basis of subjective as well as objective evaluation and according to X-Ray, CT- Scan and fluid analysis findings, and the patient has adrenal metastasis with secondary pleural effusion.

Method

As the patient is diagnosed with adrenal metastasis causing secondary pleural effusion, there are chances of recurrence of pleural effusion with a certain time period. Hence, patient may continuously feel breathlessness, weakness, fatigue and other respiratory complications (3). Here, the temporary symptomatic rehabilitation will not be helpful, the therapist need to focus on permanent care.

Symptoms	Intervention	
Breathlessness	Positioning, breathing exercise, mobility aids, etc.	Daily 10 repetitions, twice a day
Pain	Massage, TENS, Aromatherapy, Relaxation techniques.	: - Weekly once : - Daily 20 min : - Daily 15min :- Daily 10 min
Fatigue	Aerobic Exercises	Daily 20-30 min

Table No.1

Palliative care is the care useful in such cases. It is a specialized medical care that focuses on providing patient's relief from pain and other symptoms of a serious illness. Palliative care aims to improve the quality of life for both patient as well as their families. The common symptoms observed in above case are: Pain, breathlessness, fatigue and weakness.

Before starting with the treatment, the patient as well as his family must be educated with the condition and its complications. The therapist must explain them the role of physiotherapy as well as importance of the exercises. As the patient is suffering from metastasis, he might be depressed or unstable mentally, hence the therapist must try to support the patient psychologically.

The palliative care focuses on both pharmacological as well as non-pharmacological treatment. Here, we are focusing on non-pharmacological treatment i.e. our rehabilitation phase. Non-pharmacologic therapies for cancer pain management are Physical (massage, aromatherapy, transcutaneous electrical nerve stimulation, and acupuncture) and cognitive modalities (relaxation, distraction, and visualization exercises). There is an evidence to support the effectiveness of aromatherapy, transcutaneous electrical nerve stimulation, and acupuncture in reducing pain intensity in cancer patients. The results of massage studies have been mixed, but the majority of positive effects do not last past the intervention duration or immediately afterward. Evidence supports acute pain

intensity reductions with cognitive modalities; but, as with massage, evidence to support long-term pain reductions is lacking.

Breathing problems are a typical symptom that gets worse as the disease progresses. The use of non-pharmacologic therapies, such as positioning and breathing exercises, mobility aids, and muscle strengthening, should then be considered. Patients received a home visit from a physiotherapist about 2 or 3 weeks later to determine their need for aids and adaptations, as well as to strengthen self-management of breathlessness and offer further advice on pacing and exercises (4).

While most studies are limited to patients with primary cancer undergoing adjuvant chemotherapy, the use of exercise for fatigue is promoted both during and after anticancer treatment, with consistent secondary effects on depression and sleep quality. Aerobic exercise has the best proof (e.g., walking, cycling). Resistance training may have an additional function in cancers with a high prevalence of cachexia (loss of body weight and muscle mass and weakness).

Outcome Measures

Sr.No	Outcome Measures	
1.	Chest pain	Grade 4 on MCCSC
2.	Breathlessness	Grade 1 on MMRC

Table No.2

Discussion

According to the Lesley A Henson et al, (Palliative Care and the Management of Common Distressing Symptoms in Advanced Cancer: Pain, Breathlessness, Nausea and Vomiting, and Fatigue), the palliative care is most effective care in cancer patients. It helps in improving the quality of life of the patient and their family as well (5). Patients with metastatic cancer often experience several symptoms at the same time. The palliative care focuses of the symptoms occurring secondary to cancer can be treated with both pharmacological and non-pharmacological methods.

Conclusion

The above intervention is focused on the palliative care, as the condition here is adrenal metastasis. The palliative care had given remarkably beneficial for patients by the physiotherapy rehabilitation. The therapist consistently recommended the patient about rehabilitation services for palliative care to help in reducing dyspnea, chest pain and weakness. The treatment has showed marked improvement on his Quality of Life. Also showed the decrease in the symptoms.

Informed consent

Informed consent of patient was taken.

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Author Contributions

AP, PT, JB conceptualized the case JB assisted in the designing and implication of the treatment AP, PT, JB assisted documenting the case JB wrote the case report.

Conflict of Interest

The authors declare that there are no conflicts of interest.

Data and materials availability

All data associated with this study are present in the paper.

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