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# Beta Endorphins–Novel Holistic Palliative Approach in Management of Cancer Pain

*Shrihari T.G*

## ABSTRACT

Endorphins are endogenous morphine, produced in pituitary gland response to stress. There are three types of endorphins beta endorphins, enkephalins, and dynorphins binds to mu, kappa, and delta receptors situated on nervous system and immune cells. Beta-endorphins are abundant endorphins has an analgesic activity both in peripheral nervous system and central nervous system. This article highlights about the holistic approach of beta-endorphins in palliative management of cancer pain.

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## ABSTRACT

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## INTRODUCTION

Endorphins are endogenous morphine, neuropeptides produced in pituitary gland response to stress and pain. There are three types of endorphins beta-endorphins, enkephalins, dynorphins binds to  $\mu$  (mu),  $\kappa$  (kappa),  $\delta$  (delta) receptors situated on nervous system and immune cells. Beta-endorphins are abundant endorphins, potent than morphine, synthesized and stored in the anterior pituitary gland, it is a precursor of POMC (Proopiomelanocortin). Cancer pain is a severe major morbid condition during cancer, after surgery and radiotherapy difficult to manage (1-4,15,16,17).

## II. BETA-ENDORPHINS IN MANAGEMENT OF CANCER PAIN

Most immune cells produce endorphins. In inflammatory state, recruitment of immune cells

to the site of inflammation by chemokines produces endorphins. Binding of endorphins to the receptors on peripheral nerves results in inhibition of substance p, a neurotransmitter of pain and inflammation. During stressful conditions such as inflammation endorphin receptors are increased binds abruptly with endorphins. In the PNS (peripheral nervous system) binding of beta-endorphins to the  $\mu$  receptors situated on peripheral nerves results in inhibition of substance P, a neurotransmitter of pain and inflammation, inhibiting inflammatory mediators involved in pain such as IL-1 $\beta$ , TNF- $\alpha$ , and IL-6, produce anti-inflammatory cytokines such as IL-10, IFN- $\gamma$  .

In the CNS (Central nervous system) binding of beta-endorphins to the  $\mu$  (mu) receptors situated on central nervous system results in inhibition of GABA (Gama amino butyric acid) inhibitory neurotransmitter, produce dopamine neurotransmitter involved in analgesic activity, euphoria, tranquility of mind (stress buster activity) (5,12,15,16,17).

Endorphins are produced during yoga, pranayama, intense physical exercise creates a psychological relaxed state known as “Runners high”, mindful meditation, music therapy, massage, acupuncture, Love, tender, care, pranic healing, empathy and sympathy in caring the patient (6,7,8,9,10,11,12,13,14).

Beta-endorphins helps in holistic palliative approach to cancer without adverse effects and inexpensive.

### III. CONCLUSION

Endorphins are endogenous morphine; neuropeptide's produced in the pituitary gland. Beta-endorphins are an abundant endorphin, synthesized and stored in the anterior pituitary gland, more potent than morphine. It has got analgesic activity by inhibiting substance p, GABA neurotransmitters of pain and chronic psychological stress. Through understanding of beta-endorphins, mechanisms of analgesic actions, dose dependent duration of action in different types of cancer pain needed for future palliative management of cancer pain.

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