

## ROLE OF PHENYTOIN IN THE MANAGEMENT OF NEUROGENIC CANCER PAIN

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Anticonvulsants are a group of medicines commonly used for treating 'fits' or epilepsy, but are also effective for pain. The type of pain which responds well is neurogenic (neuropathic) pain. Although anticonvulsants are used widely in chronic pain, as it is less effective in acute pain, surprisingly few studies (consists of case reports and open studies) showed analgesic effectiveness in cancer pain. Neurogenic pain is often very resistant to treatment. Tricyclic antidepressants, anticonvulsants, membrane stabilizers and capsaicin can relieve neurogenic pain in different proportions. Anticonvulsants have differing modes of action and therefore failure to respond to one, does not imply that others may not work. There is a need for further controlled studies of anticonvulsants in both peripheral and central neurogenic pain. We are presenting a case report of soft tissue sarcoma of right scapular region that giving rise to neurogenic pain which was relieved with Phenytoin after trying multiple medications.

Tissue injury is usually accompanied by pain and is described as neurogenic if the initiating injury occurs to neural tissue either centrally or peripherally. Typical features of neurogenic pain, regardless of the causal injury, include shooting, lancinating pain, burning pain, paraesthesia, dysaesthesia, numbness and allodynia.<sup>1</sup>

**The clinical syndromes representing this type of disorder make up at least 25% of the patients attending most pain clinics and are much commoner than generally recognized.<sup>2</sup>**

Many drugs have been tried from anti-inflammatory, analgesics, antidepressant, antipsychotics, membrane stabilizers, capsaicin and anticonvulsants with variable results

### **Case Report**

A 15 year old female was referred to the department of Radiotherapy (RT), with an

inoperable soft tissue sarcoma of the right scapular region. Following clinical assessment, hematological investigations and radiological assessment, it neoadjuvant chemotherapy (NACT) Vincristine, Adriamycin, and Cyclophosphamide (VAC) regimen (3 weekly) followed by reassessment for any surgical intervention, after 3 cycles. Patient was started on the above mentioned regimen as an indoor patient with Vincristine 1.5 mg/m<sup>2</sup>, Adriamycin 50 mg/ m<sup>2</sup> and Cyclophosphamide 500 mg/m<sup>2</sup> intravenously.

On the 5th day following of her discharge in stable condition, patient arrived in the Out Patient Department (OPD) with severe jaw pain. She was admitted and started on the routine pain killers, but due to suboptimal response Carbamazepine 100 mg three times a day (TDS) was added. After 2 days, pain was relieved and she was discharged with advice to come back on due date for 2nd cycle of chemotherapy.

Due to pain in the 1<sup>st</sup> cycle chemotherapy, the Vincristine dose was reduced to 1 mg this time, but again on 5<sup>th</sup> day of completion of her 2nd cycle, she came in to the OPD with severe disabling pain in the cervical region radiating to the scalp. X-ray of the cervical region was normal. Injection (Inj) Tramadol 50 mg Intra-Muscular (IM) twice daily was started but due to inadequate relief, Inj Voveran 50 mg IM BD was given along with tablet (tab) Carbamazepine 200 mg per-orally tds. Due to non-relief of pain, on 3rd day, she was given tab Gabapentin 300 mg .... tds with no relief. On 4th day she was put on Inj Dexamethasone 8 mg Intravenous (IV) TDS and Inj Epsoline (Dilantin Sodium) 100mg IV tds. She responded dramatically and her pain subsided completely within 3 days. She was discharged on tab Epsoline 100 mg & tab Dexamethasone 4 mg tds for 4 days and after that, rest of the period was uneventful.

When she came for the 3<sup>rd</sup> cycle, she was having 60% objective response, Response Evaluation Criteria In Solid Tumors (RECIST), at primary site without any neurogenic pain. However, it was planned to withhold VAC regime and was switched over to ICE (Ifosfamide, Carboplatin and Etoposide) regimen due to intolerance of the first regime.

### Discussion

We commonly encounter neurogenic pain while managing cancer. Vincristine is one of the commonest chemotherapeutic agents which cause peripheral neuropathy and sometimes severe neurogenic pain.

Neuropathic pain responds inconsistently to opioids and nonsteroidal anti-inflammatory drugs. However, oral anticonvulsants have a proven analgesic effect on neuropathic pain. The first report of an anticonvulsant drug relieving neuropathic pain was that of Bergouignan <sup>3</sup> in 1942 with phenytoin. Since that time, there have been few randomized,

controlled trials of the analgesic effect of this drug in neuropathic pain. <sup>4,5</sup>

The effect of phenytoin may be its membrane stabilizing effect, an effect it shares with lignocaine and mexiletine. With chronic, stable neuropathic pain, oral anticonvulsant drugs can be titrated to an effective dose. Yajnik et al <sup>6</sup> have reported > 50% pain relief in 72% patients with a phenytoin dose of 100mg BD for 1 month duration in a randomized double blind study. In this case we have used a higher dose of phenytoin looking at the severe nature of pain and favorable side effect profile of the drug.

To conclude, the present case report supports the use of oral phenytoin in neuropathic pain, with minimal side effects.

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