Beyond Lidocaine... The Use of Compounded Topical Therapies for Chronic Neuropathic Pain

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Introduction:
Neuropathic Pain syndrome (NPS) is poorly characterized and difficult to treat in pediatric patients. The use of compounded topical therapies provides a simple and promising modality, but frequently goes underused.

Case Presentation:
• 17-year-old female with localized Ewing sarcoma of the sacrum and right iliac bone status post cyclophosphamide doxorubicin, and vincristine chemotherapy with 10/10 pain to her right sacroiliac joint, right leg, and foot on oxycontin, gabapentin, tizanidine, nortriptyline, magnesium oxide, vitamin B6, 5% lidocaine TP patch.
• Acute pain service consulted for medication escalation and alternative therapies.
• Low dose methadone started. A few days later, TENS therapy, 6% gabapentin gel, and 2% amitriptyline gel applied directly over involved sites.
• Within 24 hours, patient reported 20% improvement in pain scores, sleep, and ambulation.

Discussion:
NPS is poorly understood in pediatric patients and much remains unknown about the underlying mechanisms. Nerve injury leading to NPS may play a role in altered neuronal plasticity in the developing nervous system. Current therapy for NPS is not satisfactory and the efficacy of opioids, non-steroidal anti-inflammatory drugs, and adjuvants remains controversial.

Advantages of Compounded Topical Therapies:
• Local delivery with little if any systemic toxicity
• Fewer drug interactions
• Decreased need to titrate doses to tolerability
• Ease of administration

Limitations of Compounded Topical Therapies:
• Drug compounding is loosely regulated \(\rightarrow\) variability across pharmacies and institutions
• Lack of high quality evidence
• Conflicting data on efficacy

Common Compounded Topical Therapies

<table>
<thead>
<tr>
<th>Therapy</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gabapentin</td>
<td>5-10%</td>
</tr>
<tr>
<td>Lidocaine</td>
<td>1-10%</td>
</tr>
<tr>
<td>Baclofen</td>
<td>2%</td>
</tr>
<tr>
<td>Ketoprofen</td>
<td>10%</td>
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<tr>
<td>Ketamine</td>
<td>5-10%</td>
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<tr>
<td>Diclofenac</td>
<td>2-10%</td>
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<tr>
<td>Imipramine</td>
<td>2-10%</td>
</tr>
<tr>
<td>Cyclobenzaprine</td>
<td>2%</td>
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<tr>
<td>Amitriptyline</td>
<td>2-10%</td>
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More multicenter, randomized controlled trials are needed to assess the incidence, implications, and therapeutic modalities of effectively managing pediatric NPS. In the meantime, it may be reasonable to offer patients a trial of compounded topical therapies.

References: