Specific Care Question
In childhood cancer patients and bone marrow transplant (BMT) patients, does the use of acetaminophen versus opioid medications lead to delayed recognition of fever and a subsequent increase in poor outcomes due to infection?

Recommendations Based on Current Literature (Best Evidence) Only

No recommendation can be made for or against the use of acetaminophen versus opioids medications. When there is a lack of scientific evidence, standard work should be developed, implemented, and monitored.

Literature Summary

Background. Febrile neutropenia can occur in oncology and BMT patients and without prompt antibiotic treatment can lead to increased mortality rates (Portenoy, Ahmed, & Keilson, 2019). Before discharge at Children’s Mercy (CM), all patients (BMT and oncology) are prescribed opioids for pain as CM clinicians believe acetaminophen will mask a fever in this population.

Opioid therapy is the first-line drug for moderate or severe chronic pain in populations with cancer (Portenoy et al., 2019). The World Health Organization (WHO) recommends a stepwise approach to management of cancer pain that includes both opioid and nonopioid drugs with the use of acetaminophen for mild to moderate cancer-related pain (WHO, 2019). A Cochrane Review (Wiffen et al., 2017) on the use of oral acetaminophen for cancer pain, reported there is no high-quality evidence to support or refute the use of acetaminophen alone or in combination with opioids for cancer pain. Measures of harm (serious adverse events, other adverse events, and withdrawal due to lack of efficacy) were inconsistently reported and provided no clear evidence of difference (Wiffen et al., 2017).

Study characteristics. The search for suitable studies was completed on August 20, 2019. J. Thompson, MD reviewed 15 titles and/or abstracts found in the search and identified four single studies believed to answer the question. After an in-depth review of the remaining articles, none of the studies answered the question (see Figure 1). While no studies were found that answered the question directly, two studies were identified that might provide an understanding of attitudes and problems that need to be considered for future research.

In a survey (Weinkove, Clay, & Wood, 2013) of doctors and nurses (N = 88) from New Zealand, 68% of doctors indicated that they would allow a neutropenic patients to take acetaminophen as needed for pain, and a further 15% would allow a neutropenic outpatient to take regular acetaminophen. Nurses were more likely than doctors to advise a neutropenic patient to avoid acetaminophen, p < 0.05.

In a cohort study from India (Oberoi, Trehan, Marwaha, & Bansal, 2013) febrile neutropenic children (N = 320) with acute lymphoblastic leukemia (ALL) were evaluated for delayed presentation to the hospital. The most common reason for delay was false reassurance secondary to defervescence resulting from intake of acetaminophen (30%). Intake occurred despite counseling sessions, where patients were advised to avoid intake of acetaminophen at the onset of fever.

Identification of Studies

Search Strategy and Results (see Figure 1)

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Records identified through database searching n = 15
Additional records identified through other sources n = 0

Studies Included in this Review

<table>
<thead>
<tr>
<th>Citation</th>
<th>Study Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>No studies identified</td>
<td></td>
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</table>

Studies Not Included in this Review with Exclusion Rationale

<table>
<thead>
<tr>
<th>Citation</th>
<th>Reason for exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dokko (2015)</td>
<td>Review article</td>
</tr>
<tr>
<td>Oberoi et al. (2013)</td>
<td>Did not compare to opioid</td>
</tr>
<tr>
<td>Reymond et al. (1997)</td>
<td>Inpatient setting looking at IV acetaminophen</td>
</tr>
<tr>
<td>Weinkove et al. (2013)</td>
<td>Survey</td>
</tr>
</tbody>
</table>

Methods Used for Appraisal and Synthesis

aRayyan is a web-based software used for the initial screening of titles and / or abstracts for this analysis (Ouzzani, Hammady, Fedorowicz & Elmagarmid, 2017).
bThe Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram depicts the process in which literature is searched, screened, and eligibility criteria is applied (Moher, Liberati, Tetzlaff, & Altman, 2009).


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EBP Team Member Responsible for Reviewing, Synthesizing, and Developing this Document
Jarrod Dusin, MS, RD, LD, CPHQ

Acronyms Used in this Document

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Explanation</th>
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<tbody>
<tr>
<td>ALL</td>
<td>Acute lymphoblastic leukemia</td>
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If you have questions regarding this Specific Care Question – please contact jmichael@cmh.edu or jcthompson@cmh.edu
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<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
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<tbody>
<tr>
<td>BMT</td>
<td>Bone marrow transplant</td>
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<tr>
<td>CM</td>
<td>Children’s Mercy</td>
</tr>
<tr>
<td>EBP</td>
<td>Evidence Based Practice</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
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Date Developed/Updated
October 2019
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Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)
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References


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