Efficacy of ginger (Zingiber officinale) in ameliorating chemotherapy-induced nausea and vomiting and chemotherapy-related outcomes: A systematic literature review update and meta-analysis

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Ginger for Chemotherapy-induced nausea and vomiting?

*a systematic literature review and meta-analysis*

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What’s the issue?

- Fatigue
- Loss of appetite
- Weight loss
- **Nausea + vomiting**
- Decreased QoL
- Depression
- Anxiety
- GI symptoms

- ↓ QoL
- ↓ oral intake
- Malnutrition
- Treatment cessation
- Mortality
Anti-CINV mechanisms for Ginger

Evidence for Ginger for CINV

**Ginger (Zingiber officinale) and chemotherapy-induced nausea and vomiting: a systematic literature review**

N=7 studies
Qualitative analysis
Mixed support for use of ginger

N=5 studies
Meta-analysis
No significant effect of ginger

Standard recommendations for use of ginger for CINV in the clinical setting **not warranted.**
Study Aim

To evaluate the **efficacy** of ginger supplementation in the **prevention and management** of CINV.
Method

- 5 electronic databases searched
- From database inception to April 2018
- Data pooled (meta-analysis)
- Study quality assessed (Cochrane ROB Tool)
- Quality of body of evidence evaluated (GRADE)
Method – Study Characteristics

**Included**
- Any language
- Age >18 years
- Chemotherapy patients
- Intervention of ginger
- Comparator of placebo or standard care alone

**Excluded**
- Radiation
- Unable to be translated to English
- Receiving other interventions as comparator
Results – Search

- Records identified through database searching (n=203)
- Records screened title and abstract only (n=210)
- Full-text papers assessed for eligibility (n=37)
- Papers included in qualitative synthesis (n=18)
- Papers included in meta-analysis (n=13)
- Duplicates removed (n=89)
- Records excluded (n=84)
- Full-text papers excluded (n=19)
- Additional records identified through snowballing (n=2)
- Additional records identified in previous SLR (n=5)
### Results – Study Quality (Risk of Bias)

<table>
<thead>
<tr>
<th>Study</th>
<th>Random sequence generation (selection bias)</th>
<th>Allocation concealment (selection bias)</th>
<th>Blinding of participants and personnel (performance bias)</th>
<th>Blinding of outcome assessment (detection bias)</th>
<th>Incomplete outcome data (attrition bias)</th>
<th>Selective reporting (reporting bias)</th>
<th>Other bias</th>
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## Results – Study Samples

<table>
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<tr>
<th>Category</th>
<th>Details</th>
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<tr>
<td>Total No. participants</td>
<td>1652</td>
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<td>Sample sizes</td>
<td>20-375</td>
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<td>Female</td>
<td>64%</td>
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<td>Country</td>
<td>Iran (n=6 studies), Thailand (n=4), USA (n=2), Turkey (n=2), Italy, Indonesia, China, Australia (n=1)</td>
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<td>Cancer</td>
<td>Breast (n=9), lung (n=2), ovarian (n=2), other (gastrointestinal, haematological, unspecified) (n=5)</td>
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<td>CTx type</td>
<td>Platinum-based (n=8); anthracycline-based (n=6); unspecified (n=4)</td>
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<td>CTx emetogenicity</td>
<td>Moderate and/or high (n=8); unspecified (n=10)</td>
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<td>CTx regimen</td>
<td>Single-day (n=6); unspecified (n=12)</td>
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<td>Anti-emetics</td>
<td>Coticosteroid + 5-HT&lt;sub&gt;3&lt;/sub&gt; receptor antagonist (n=6); Coticosteroid + 5-HT&lt;sub&gt;3&lt;/sub&gt; receptor antagonist + other (n=7); aprepitant + 5-HT&lt;sub&gt;3&lt;/sub&gt; receptor antagonist (n=2); unspecified (n=3)</td>
</tr>
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</table>
Results – Nausea Incidence

Any dose for >3-days duration significantly reduced odds of overall nausea incidence by 27%.
GRADE level: very low

>1g/day for any duration significantly reduced odds of overall nausea incidence by 42%.
GRADE level: very low
Results – Vomiting Incidence

Any dose for >3-days duration significantly reduced odds of overall nausea by 40%.
GRADE level: low

≤1g/day for any duration significantly reduced odds of overall vomiting incidence by 30%.
GRADE level: low
Limitations

- Clinical heterogeneity
- Missing Data
- Small sample size in some studies
- Limited confidence in estimated effect
Take Home Message

Ginger supplementation for >3-days may improve CINV. Existing research around dosage remains inconsistent.

...more research!

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