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

Wolfgang M Marx, Laisa Teleni, Alexandra L McCarthy, Luis Vitetta, Dan McKavanagh, Damien Thomson, and Elisabeth Isenring

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

Ginger as an Antiemetic Modality for Chemotherapy-Induced Nausea and Vomiting: A Systematic Review and Meta-Analysis

Jiyeon Lee, RN, PhD, ACNP-BC, and Heeyoung Oh, RN, PhD

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)

Additional records identified through snowballing (n=2)

Additional records identified in previous SLR (n=5)

Full-text papers excluded (n=19)
## Results – Study Quality (Risk of Bias)

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<td>Blinding of outcome assessment (detection bias)</td>
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<td>Incomplete outcome data (attrition bias)</td>
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<td>Selective reporting (reporting bias)</td>
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## Results – Study Samples

<table>
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<tr>
<th>Category</th>
<th>Description</th>
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<tr>
<td><strong>Total No. participants</strong></td>
<td>1652</td>
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<tr>
<td><strong>Sample sizes</strong></td>
<td>20-375</td>
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<td><strong>Female</strong></td>
<td>64%</td>
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<tr>
<td><strong>Country</strong></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><strong>Cancer</strong></td>
<td>Breast (n=9), lung (n=2), ovarian (n=2), other (gastrointestinal, haematological, unspecified) (n=5)</td>
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<td><strong>CTx type</strong></td>
<td>Platinum-based (n=8); anthracycline-based (n=6); unspecified (n=4)</td>
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<td><strong>CTx emetogenicity</strong></td>
<td>Moderate and/or high (n=8); unspecified (n=10)</td>
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<td><strong>CTx regimen</strong></td>
<td>Single-day (n=6); unspecified (n=12)</td>
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<td><strong>Anti-emetics</strong></td>
<td>Coticosteroid + 5-HT₃ receptor antagonist (n=6); Coticosteroid + 5-HT₃ receptor antagonist + other (n=7); aprepitant + 5-HT₃ receptor antagonist (n=2); unspecified (n=3)</td>
</tr>
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</table>
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**

For any duration, lower dose for ≤1g/day significantly reduced odds of overall vomiting incidence by 30%.

**GRADE level:** low

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

**GRADE level:** low
Limitations

- Clinical heterogeneity
- Missing Data
- Small sample size in some studies
- Limited confidence in estimated effect
Ginger supplementation for >3-days may improve CINV. Existing research around dosage remains inconsistent. ...more research!

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