Cardiovascular toxicity induced by chemotherapy, targeted agents and radiotherapy and its management, considering also cachexia

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clinical practice guidelines

Cardiovascular toxicity induced by chemotherapy, targeted agents and radiotherapy: ESMO Clinical Practice Guidelines†

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Anthraccline cardiotoxicity in the elderly cancer patient: a SIOG expert position paper

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Risk factors for radiation-associated heart damage include:
- dose >30–35 Gy
- dose per fraction >2 Gy
- large volume of irradiated heart
- younger age at exposure
- longer time since exposure
- use of cytotoxic chemotherapy
- endocrine therapy or trastuzumab
- presence of other risk factors such as diabetes, hypertension, dyslipidaemias, obesity, smoking etc.
<table>
<thead>
<tr>
<th>Trial</th>
<th>Design</th>
<th>Asymptomatic drop in LVEF ((\geq 10) percentage-points to (&lt;55%))</th>
<th>Severe CHF/cardiac events (NYHA class III/IV CHF or death)</th>
<th>Discontinued for cardiac reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSABP B31 [18] (n = 2043)</td>
<td>AC + TH + H versus AC + T</td>
<td>34% versus 17%</td>
<td>4.1% versus 0.8%</td>
<td>19% (^a)</td>
</tr>
<tr>
<td>NCCTG N9831, (n = 2766) [19]</td>
<td>AC + TH + H versus AC + T + H versus AC + T</td>
<td>5.8–10.4% versus 4.0–7.8% versus 4.0–5.1%</td>
<td>3.3% versus 2.8% versus 0.3%</td>
<td>n/a (^a)</td>
</tr>
<tr>
<td>BCIRG 006, (n = 3,222) [14]</td>
<td>AC + T versus AC + TH + H versus TCaH (^b)</td>
<td>11% versus 19% versus 9%</td>
<td>0.7% versus 2.0% versus 0.4%</td>
<td>n/a</td>
</tr>
<tr>
<td>HERA, (n = 5,102) [20]</td>
<td>Adj chemo (^c) (\geq H) versus Adj chemo alone</td>
<td>7.1% versus 2.2%</td>
<td>0.6% versus 0.06%</td>
<td>4.3%</td>
</tr>
<tr>
<td>FinHer, (n = 232) [21]</td>
<td>V or T + H versus V or T (\geq )FEC (\times 3)</td>
<td>3.5% versus 8.6%</td>
<td>0% versus 3.4%</td>
<td>n/a</td>
</tr>
</tbody>
</table>

A, anthracycline; C, cyclophosphamide; T, taxane; H, trastuzumab; Ca, carboplatin; V, vinorelbine; F: 5-flourouracil; E, epirubicin; n/a, information not available.

\(^a\)6.7\% did not receive H after A due to unacceptable drops in LVEF.

\(^b\)Included a nonanthracycline arm.

\(^c\)96\% of chemotherapy was A containing.

\(^d\)No prior anthracycline before H exposure; H exposure limited to 9 weeks.
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Figure 1. Algorithm for the management of cardiotoxicity in patients receiving anthracyclines.
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