

Conclusions of evidence for cancer therapy-related cardiac dysfunction risk equivalence ratios for anthracycline and anthraquinone agents after childhood cancer treatment

Compound	Number of participants having received specified compound	Number of events* in participants having received specified compound	Heart failure risk ratio relative to doxorubicin in multivariate analysis; mean (95% CI)	GRADE quality of evidence
Doxorubicin	9330	229	1 (referent)	na (referent)
Daunorubicin	4433	65	0.6 (0.4-1.0) [†]	Low [‡]
Mitoxantrone	265	19	10.5 (6.2-19.1) [§]	Low [‡]
Epirubicin	300	9	0.8 (0.3-1.4) [¶]	Low [#]
Idarubicin	241	5	na ^{**}	na

Abbreviations: na, not applicable; * events were defined as grade 3-5 heart failure according to an adapted version of the National Cancer Institute – Common Terminology Criteria for Adverse Events (NCI CTCAE), version 4.03; [†] heart failure risk ratio per dose category: <150mg/m²: 0.8, 150-299mg/m²: 0.6, ≥300mg/m²: 0.5; [‡] quality of evidence downgraded due to study limitations (unclear risk of selection and detection bias) and imprecision (variation in point estimates based on dose category and statistical model); [§] heart failure risk ratio per dose category: <150mg/m²: 11.2, 150-299mg/m²: 4.0, ≥300mg/m²: 16.8; [¶] heart failure risk ratio per dose category: <150mg/m²: 1.3, 150-299mg/m²: 0.6, ≥300mg/m²: 0.5; [#]quality of evidence downgraded due to study limitations (unclear risk of selection and detection bias) and imprecision (few events, non-significant results; ^{**}number of events in several dose categories too low to estimate a mean ratio

Publication

Kouwenberg TW, van Dalen EC, Mulder RL, Armenian S, Feijen EAM, Chow EJ, Kosmidis H, Vormoor-Bürger BJ, Kiyotani C, Nathan PC, Kapusta L, Grotenhuis HB, Engels FK, Teske AJ, Tragiannidis A, Slieker MG, Ozono S, Nohria A, Sláma T, Skinner R, Hudson MM, Kremer LCM, Ehrhardt MJ, Mavinkurve-Groothuis AMC. IGHG Recommendations for Anthracycline and Anthraquinone Cardiac Dysfunction Equivalence Ratios After Childhood Cancer: JACC: CardioOncology Expert Panel. JACC CardioOncol. 2025 Jun 11:S2666-0873(25)00234-0.