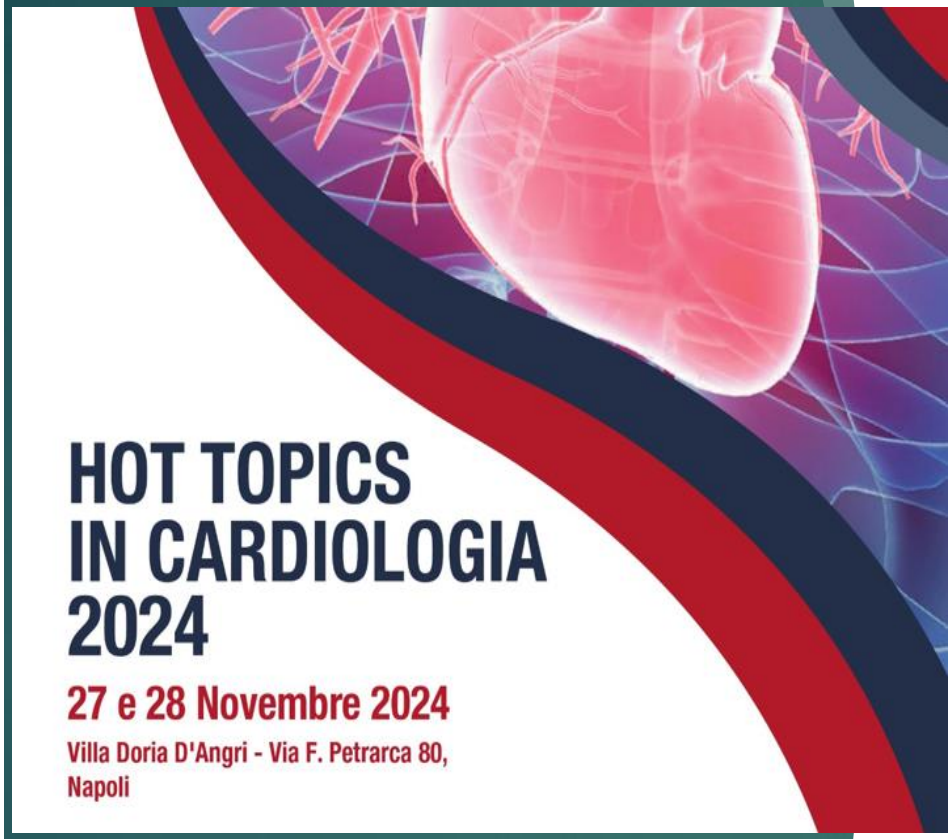

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Cardiovascular Diabetology

RESEARCH Open Access

Progressive right ventricular dysfunction and exercise impairment in patients with heart failure and diabetes mellitus: insights from the T.O.S.CA. Registry

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Progressive right ventricular dysfunction and exercise impairment in patients with heart failure and diabetes mellitus: insights from the T.O.S.CA. Registry

Table 2 Echocardiographic characteristics of the whole CHF population classified as Euglycemic, IR, and DM

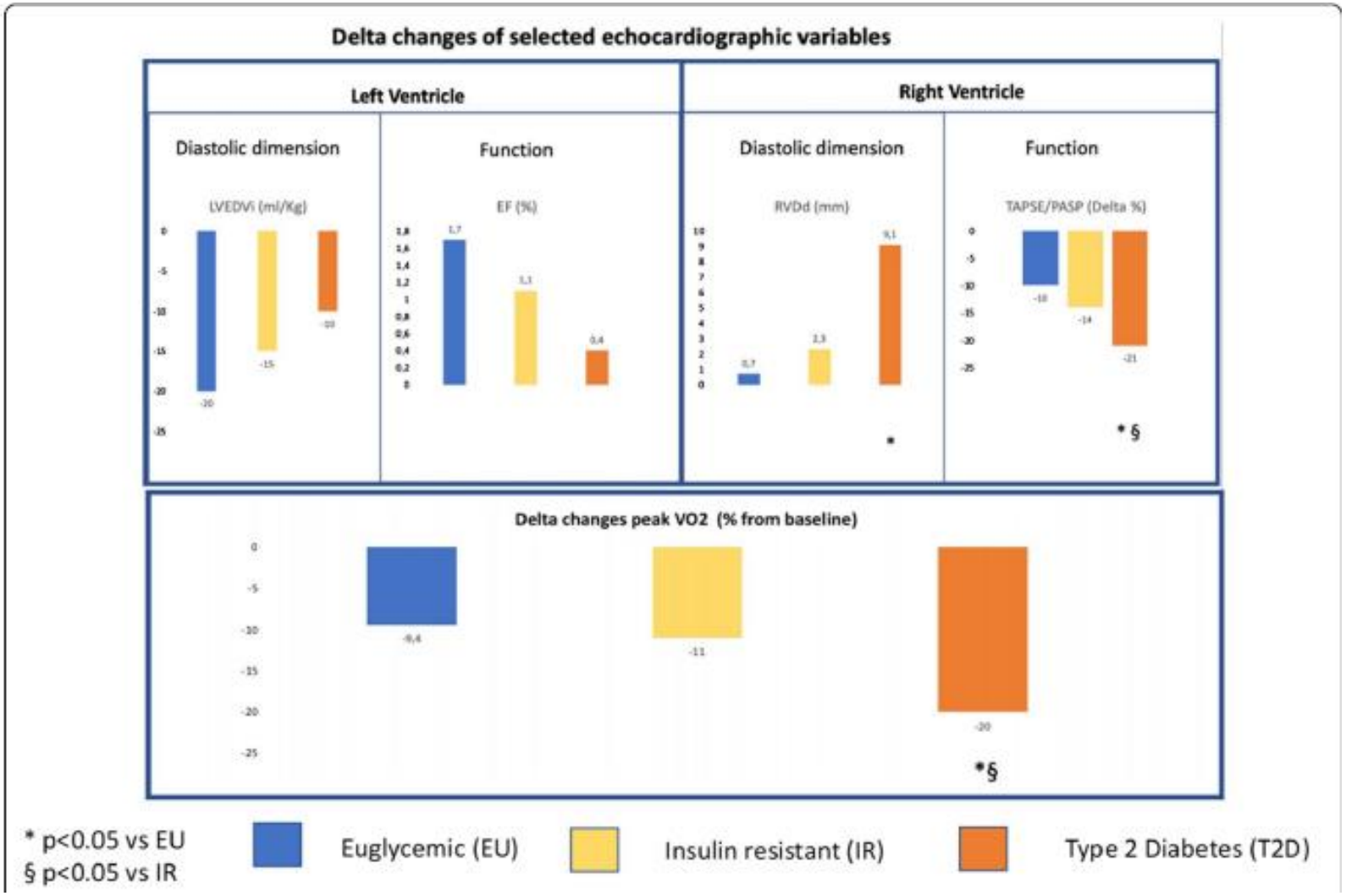
Characteristics	Study cohort	Euglycemic (n = 172)	IR (n = 188)	T2D (n = 120)	ANOVA F-value	p-value
IVSd (mm)	10.6 ± 2	10 ± 2	10 ± 2	11 ± 2*§	6.1	< 0.05
LVEDd (mm)	62.7 ± 8.4	63.2 ± 8.4	62.9 ± 8.8	62.0 ± 8.0	0.4	0.6
PWd (mm)	9.6 ± 1.5	9.5 ± 1.5	9.6 ± 1.5	9.8 ± 1.6	1.3	0.3
LVEDVi (ml/m^2)	97.8 ± 38.2	99.1 ± 33.6	100 ± 43.2	93.2 ± 36.4	1.1	0.3
RWT (IVSd + PWd)/LVEDd	0.33 ± 0.1	0.32 ± 0.1	0.32 ± 0.1	0.34 ± 0.1§*	4.7	< 0.05
LVMi	145 ± 44	139 ± 29	146 ± 37	150 ± 85	1.4	0.3
LAVi (ml/m^2)	42.7 ± 21.3	38.3 ± 17.2	43.0 ± 19.0	48.0 ± 26.4*	5.8	< 0.01
E velocity (cm/sec)	73.2 ± 26.0	73.3 ± 26.2	69.9 ± 22.0	77.5 ± 30.0§	2.1	0.12
E/e′	14 ± 8	12 ± 6	14 ± 8*	16 ± 9§*	6.1	< 0.01
PASP (mmHg)	37 ± 14.5	38 ± 15	35 ± 15	39 ± 15	2.4	0.1
TAPSE	18.7 ± 4.6	19.1 ± 4.7	18.7 ± 4.6	18.2 ± 4.5	1.4	0.2
TAPSE/PASP	0.6 ± 4.6	0.6 ± 0.3	0.6 ± 0.3	0.52 ± 0.2§*	3.2	< 0.05
Moderate/severe tricuspid regurgitation (n; %)	112; 23	36; 21	41; 22	35; 29	4.2	< 0.1
RVDd (mm)	36.3 ± 9.5	37.3 ± 7.6	36.5 ± 11.2	34.9 ± 9.0	0.8	0.4
RVFAC (%)	55 ± 12	56.5 ± 10.7	55.9 ± 11.6	53.5 ± 13,5	1.6	0.5
RADVi (ml/m^2)	30 ± 16	26 ± 13	30 ± 14	34 ± 19*	4.0	< 0.05

IVSd, Inter Ventricular Septum Diastole; LVEDd, Left Ventricular End Diastolic Diameter; PWd, Posterior Wall Diastole; LVEDVi, LVEDV/BSA (Left Ventricular End Diastolic Volume/BSA); RWT, Relative Wall Thickness; LVMi, LVM/BSA (Left Ventricular Mass/BSA); LAVi, LAV/BSA (Left Atrial Volume/BSA); E Velocity; PAPS, Pulmonary Artery Systolic Pressure; TAPSE, Tricuspid Annular Plane Systolic Excursion; RVDd, Right Ventricular Diastolic Diameter; RVFAC, Right ventricular fractional area change; RADVi, RADV/BSA (Right Atrial Diastolic Volume/BSA)

* $p < 0.05$ respect Euglycemic

§ $p < 0.05$ respect IR

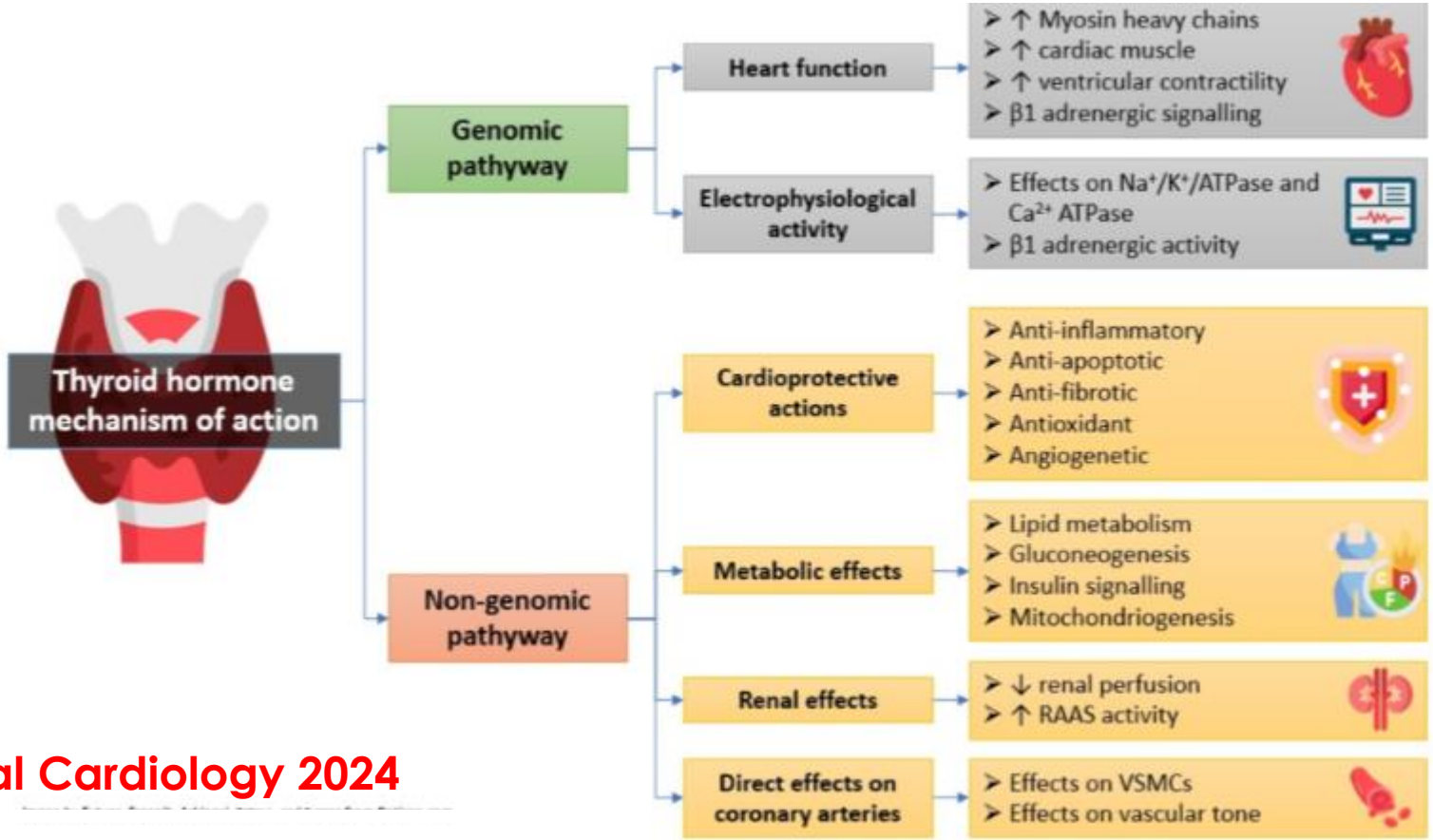
Progressive right ventricular dysfunction and exercise impairment in patients with heart failure and diabetes mellitus: insights from the T.O.S.CA. Registry



CLINICAL CARDIOLOGY

Prognostic role and relationship of thyroid dysfunction and lipid profile in hospitalized heart failure patients

Ping Zhou MD | Liyan Huang MD | Mei Zhai MD | Yan Huang MD | Xiaofeng Zhuang MD | Huihui Liu MD | Yuhui Zhang PhD | Jian Zhang PhD



Clinical Cardiology 2024

Variables	Model 1		Model 2		Model 3	
	Hazard ratio (95% CI)	*p* value	Hazard ratio (95% CI)	*p* value	Hazard ratio (95% CI)	*p* value
Thyroid hormones						
Low fT3	2.43 (2.17–2.70)	<.001	2.33 (2.04–2.56)	<.001	1.33 (1.15–1.54)	<.001
Low fT4	1.08 (0.86–1.33)	.53	1.01 (0.77–1.28)	.94	1.11 (0.83–1.47)	.494
Normal TSH						
Low TSH	1.41 (1.22–1.63)	<.001	1.24 (1.05–1.45)	.009	1.08 (0.89–1.3)	.45
Elevated TSH	1.47 (1.26–1.71)	<.001	1.50 (1.28–1.75)	<.001	1.37 (1.15–1.64)	<.001
Thyroid function						
Low T3 syndrome	2.59 (2.28–2.95)	<.001	2.58 (2.25–2.97)	<.001	1.39 (1.15–1.68)	<.001
Subclinical hyperthyroidism	1.36 (1.1–1.68)	.004	1.33 (1.06–1.65)	.012	1.14 (0.87–1.48)	.344
Overt hyperthyroidism	2.31 (1.49–3.56)	<.001	2.17 (1.38–3.4)	<.001	1.73 (1.00–2.98)	.048
Subclinical hypothyroidism	1.63 (1.32–2.00)	<.001	1.67 (1.35–2.06)	<.001	1.43 (1.13–1.82)	.003
Overt hypothyroidism	2.49 (2.01–3.10)	<.001	2.48 (1.96–3.15)	<.001	1.76 (1.33–2.34)	<.001
Lipid profile*						
TC	0.63 (0.50–0.79)	<.001	0.70 (0.55–0.88)	.003	0.64 (0.49–0.83)	<.001
TG	0.67 (0.60–0.75)	<.001	0.77 (0.68–0.87)	<.001	0.92 (0.8–1.07)	.284
LDL-C < 1.89 mmol/L						
1.89 mmol/L ≤ LDL-C < 2.41 mmol/L	0.77 (0.68–0.87)	<.001	0.79 (0.7–0.9)	<.001	0.86 (0.74–0.99)	.036
2.41 mmol/L ≤ LDL-C < 3.03 mmol/L	0.80 (0.67–0.94)	.009	0.9 (0.75–1.07)	.243	0.95 (0.78–1.17)	.655
LDL-C ≥ 3.03 mmol/L	0.68 (0.54–0.86)	.002	0.78 (0.61–1)	.053	0.67 (0.5–0.89)	.007
HDL-C	0.79 (0.6–1.03)	.08	0.65 (0.49–0.86)	.003	0.77 (0.55–1.07)	.119

Immune Checkpoint Inhibitors and Cardiotoxicity: A Comparative Meta-Analysis of Observational Studies and Randomized Controlled Trials

Akash Sharma, MBBS; Grace Alexander, MD; Jian H. Chu, MD, MPH; Artemis Markopoulos, MA; Gilgamish Maloul, MA; Muhammad Talha Ayub, MD, MSc; Mary J. Fidler, MD; Tochukwu M. Okwuosa, DO

BACKGROUND: Immune checkpoint inhibitors (ICIs) have uncommon associations with cardiotoxicity, yet these cardiotoxic effects are associated with high mortality. An accurate assessment of risk for cardiotoxicity is essential for clinical decision-making, but data from randomized controlled trials often differ from real-world observational studies.

METHODS AND RESULTS: A systematic search of PubMed, Embase, Cochrane Library, and Scopus was performed, including phase II and III randomized controlled trials (RCTs) and observational studies (OSs) reporting myocarditis or pericardial disease, myocardial infarction, or stroke with an immunotherapy. Odds ratios (ORs) were used to pool results between ICIs and other cancer therapy in RCTs and OSs. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses guideline was followed. In total, 54 RCTs (N=38 264) and 24 OSs (N=12 561 455) were included. In RCTs, ICI use resulted in higher risk of myocarditis (OR, 3.55 [95% CI, 2.10–5.98]), pericardial disease (OR, 2.73 [95% CI, 1.57–4.77]), and myocardial infarction (OR, 1.83 [95% CI, 1.03–3.25]), compared with non-ICI (placebo or chemotherapy). In OSs, ICI use was not associated with myocarditis, pericardial disease, or myocardial infarction compared with controls; however, combination ICIs demonstrated higher risk of myocarditis compared with single ICI use (OR, 3.07 [95% CI, 1.28–7.39]). Stroke risk was not increased with use of ICIs in RCTs.

CONCLUSIONS: We demonstrated increased risk of ICI myocarditis, pericardial disease, and myocardial infarction in RCTs but not OSs. Results of this study suggest there are differences between ICI cardiotoxicity risk, possibly suggesting differences in diagnoses and management, in clinical trials versus the OSs.

Key Words: cardiotoxicity ■ immune checkpoint inhibitors ■ immune-related adverse events

J Am Heart Assoc. 2024;13:e032620. DOI: 10.1161/JAHA.123.032620

Immune Checkpoint Inhibitors and Cardiotoxicity: A Comparative Meta-Analysis of Observational Studies and Randomized Controlled Trials

CLINICAL PERSPECTIVE

What Is New?

- This is the first study to simultaneously assess associations between immune checkpoint inhibitor use and cardiovascular outcomes in randomized controlled trials versus observational studies.

What Are the Clinical Implications?

- Our results support that there are significant differences in cardiotoxicity diagnosis and management between clinical trials and the real world.
- Vigilant cardiovascular monitoring is essential for patients taking immune checkpoint inhibitors with preexisting cardiovascular disease or risk factors, especially as immunotherapy becomes more prevalent in medicine.
- Future research is needed regarding predictors of cardiovascular events and how to mitigate risk of cardiovascular events in patients taking immune checkpoint inhibitors.

CONCLUSIONS

In our meta-analysis we found that in RCTs, ICI treatment was associated with 3.5 and 2.7 times higher risk of myocarditis and pericardial disease compared with chemotherapy or placebo, with further increased risk with combination ICI therapy. On the other hand, ICI use did not increase the risk of MPD relative to controls in OSs. Overall, combination ICI increased the risk of MPD compared with single and non-ICI use in the OSs. ICI use increased the risk of MI in RCTs but not in OSs. We did not observe an increase in stroke risk with use of ICI therapy relative to chemotherapy or placebo.

The observed associations between ICIs and myocarditis in RCTs but not OSs could be reflective of differences in diagnosis, as well as therapy/management between the real world and clinical trials. Future studies in ICI-associated cardiotoxicity should evaluate such trial differences.

Immunotherapy-associated cardiovascular toxicities: insights from preclinical and clinical studies

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Immune checkpoint inhibitors (ICIs) have become a widely accepted and effective treatment for various types of solid tumors. Recent studies suggest that cardiovascular immune-related adverse events (irAEs) specifically have an incidence rate ranging from 1.14% to more than 5%. Myocarditis is the most common observed cardiovascular irAE. Others include arrhythmias, pericardial diseases, vasculitis, and a condition resembling takotsubo cardiomyopathy. Programmed cell death-1 (PD-1)/programmed cell death ligand-1 (PD-L1) pathway, cytotoxic T-lymphocyte antigen-4 (CTLA-4) pathway, and the recently discovered lymphocyte-activation gene 3 (LAG-3) pathway, play a critical role in boosting the body's natural immune response against cancer cells. While ICIs offer significant benefits in terms of augmenting immune function, they can also give rise to unwanted inflammatory side effects known as irAEs. The occurrence of irAEs can vary in severity, ranging from mild to severe, and can impact the overall clinical efficacy of these agents. This review aims to summarize the underlying mechanisms of cardiovascular irAE from both preclinical and clinical studies for a better understanding of cardiovascular irAE in clinical application.

Frontiers in Oncology, Feb 2024

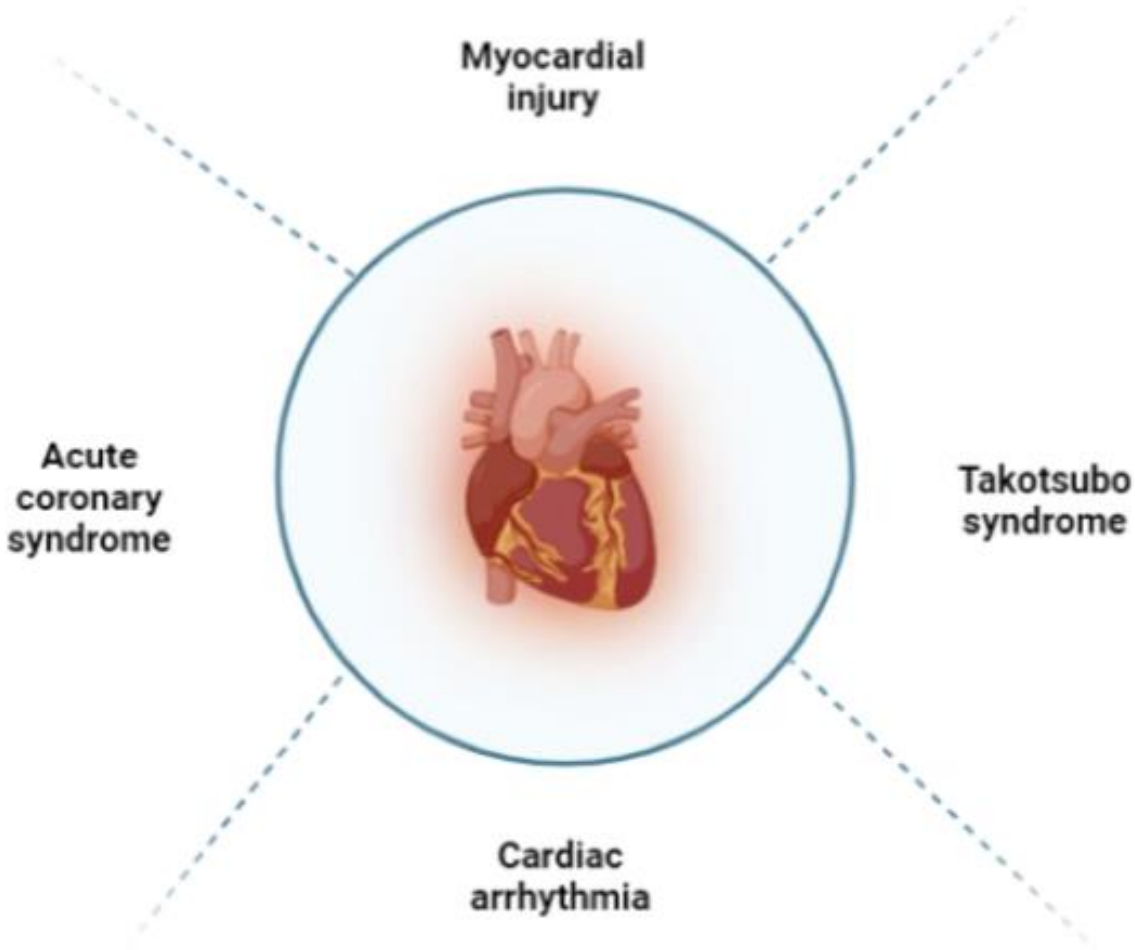


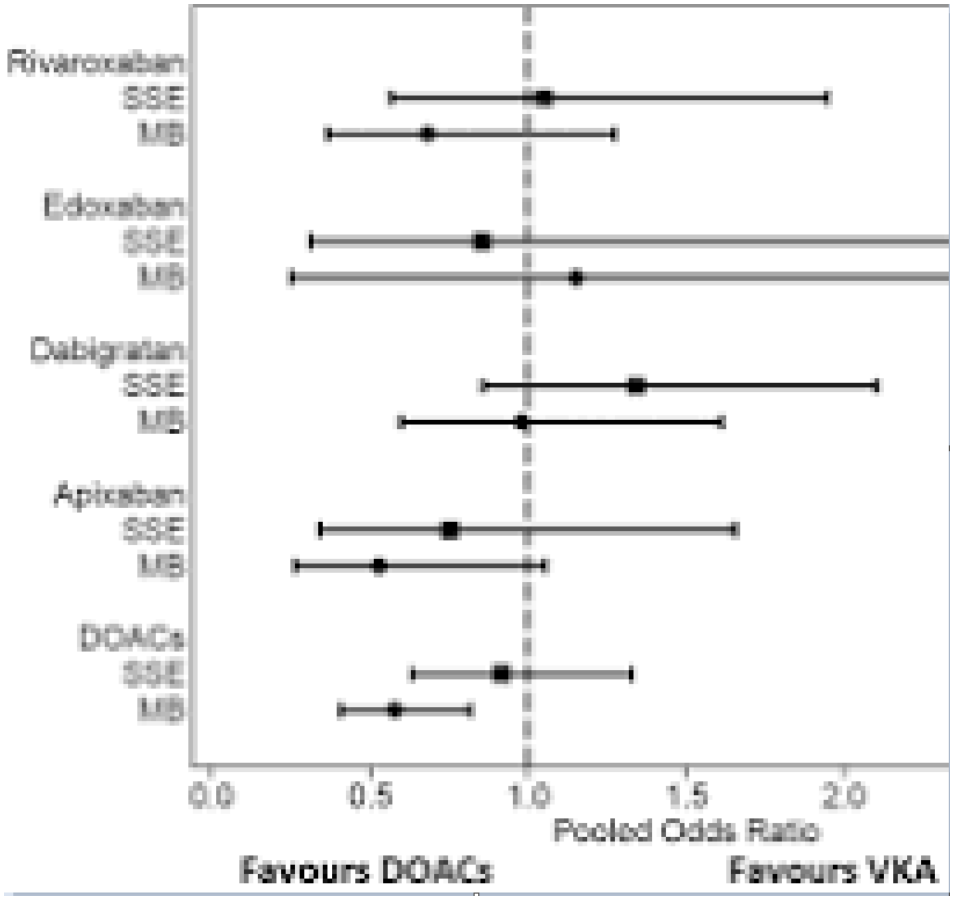
FIGURE 2
Types of cardiotoxicity induced by immune checkpoint inhibitors.

Frontiers in Oncology, Feb 2024

Meta-Analysis > Int J Cardiol. 2023 May 15:379:40-47. doi: 10.1016/j.ijcard.2023.03.023. Epub 2023 Mar 11.

Safety and efficacy of direct oral anticoagulants versus vitamin K antagonists in atrial fibrillation electrical cardioversion: An update systematic review and meta-analysis

Federica Troisi [1], Pietro Guida [2], Nicola Vitulano [2], Federico Quadrini [2], Antonio Di Monaco [3], Massimo Grimaldi [2]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Pooled Odds Ratio
Favours DOACs
Favours VKA

GRAZIE PER L'ATTENZIONE