

		Risk of bias domains					
		D1	D2	D3	D4	D5	Overall
Study	Feldman 2018	+	-	+	+	+	-
	W. Stone 2024	+	-	+	+	+	-
	Gustafsson 2024	+	+	+	+	+	+

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
- Some concerns
+ Low

Supplementary Figure 1 Risk of bias analysis of randomized controlled trials.

		Risk of bias domains							
		D1	D2	D3	D4	D5	D6	D7	Overall
Study	sondergaard 2024	+	+	+	+	+	+	+	+
	Kaye 2016	-	+	+	-	+	-	-	-
	Rodés-Cabau 2024	+	+	+	+	+	+	+	+
	Paitazoglou 2021	-	+	+	-	+	-	-	-
	Fioretti 2025	+	+	+	+	+	+	+	+

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement
- Moderate
+ Low

Supplementary Figure 2 Risk of bias analysis of non-randomized studies.

Supplementary Table 1 Detailed search strategy for literature search

Database	Search strategy	Results
Pubmed	(Heart failure OR HF OR Heart failure with preserved ejection fraction OR HFpEF OR Heart failure with reduced ejection fraction OR HFrEF) AND (Interatrial shunt OR Atrial shunt device OR Interatrial septal device OR IASD)	455

EMBASE	(Heart failure OR HF OR Heart failure with preserved ejection fraction OR HFpEF OR Heart failure with reduced ejection fraction OR HFrEF) AND (Interatrial shunt OR Atrial shunt device OR Interatrial septal device OR IASD)	384
Cochrane	(Heart failure OR HF OR Heart failure with preserved ejection fraction OR HFpEF OR Heart failure with reduced ejection fraction OR HFrEF) AND (Interatrial shunt OR Atrial shunt device OR Interatrial septal device OR IASD)	48
Clinicaltrial s.gov	(Heart failure OR HF OR Heart failure with preserved ejection fraction OR HFpEF OR Heart failure with reduced ejection fraction OR HFrEF) AND (Interatrial shunt OR Atrial shunt device OR Interatrial septal device OR IASD)	60

Supplementary Table 2 Risk bias analysis for observational studies

Ref.	Selection					Comparability		Outcome			Total
	S1	S2	S3	S4	C			O1	O2	O3	
Del Trigo <i>et al</i> [18], 2016	1	2	1	1	2		2	1	1	1	6 ¹

¹Criterion met (low risk of bias).

²Criterion not met or unclear risk of bias.

C: Comparability of cohorts on the basis of the design or analysis. O1: Assessment of outcome. O2: Was follow-up long enough for outcomes to occur. O3: Adequacy of follow-up of cohorts. S1: Representativeness of the exposed cohort. S2: Selection of the non-exposed cohort. S3: Ascertainment of exposure. S4: Demonstration that outcome of interest was not present at start of study. Total number of criteria met (expressed as number of stars, maximum = 9).