

Direct stenting versus conventional stenting in ST-segment elevation myocardial infarction:

A systematic review.

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Introduction

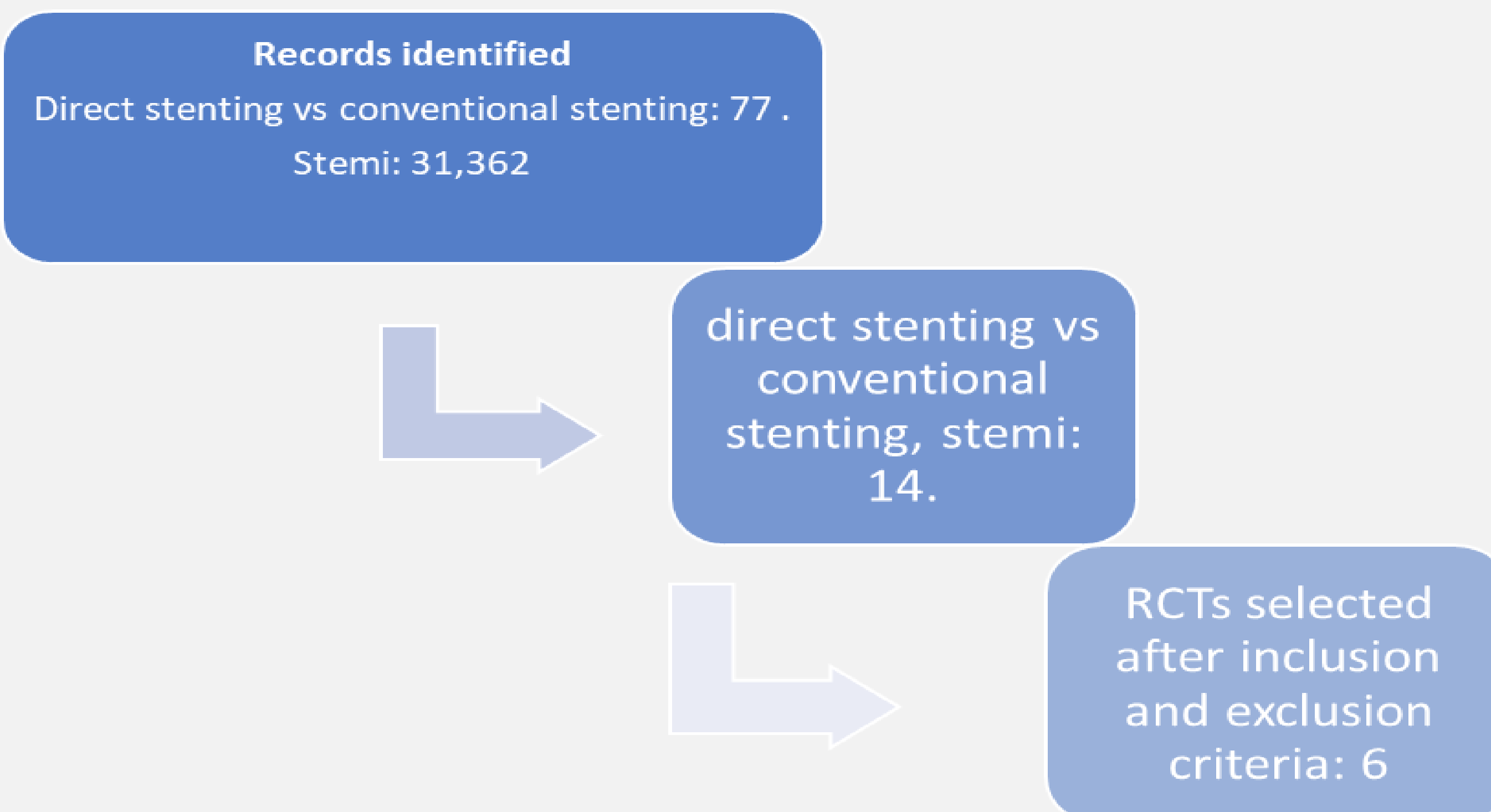
ST-segment elevation myocardial infarction (STEMI) has a large thrombus burden. Conventional stenting involves balloon pre-dilatation followed by stent placement, with this there is a higher chance of distal embolization, especially in STEMI. One emerging PCI technique is direct stenting without balloon pre-dilatation. This technique prevents distal embolization as it traps thrombus behind stent and theoretically is associated with better outcomes in STEMI patients. We sought to compare conventional stenting (CS) with DS in patients presenting with STEMI in a systematic review of randomized controlled trials [1,2,3].

Methods

Studies were identified from PubMed database. Only those studies were included that compared DS with CS in patients with acute myocardial infarction. Data were extracted and articles were critically appraised by two authors. The primary endpoint was injury to myocardium and overall prognosis.

Results

Six trials (n = 1100) met the eligibility criteria. Some studies mentioned significant improvement in left ventricular parameters, which was associated with favorable clinical outcomes [lower incidence of heart failure hospitalizations and mortality] as compared to CS, on the other hand, few studies mentioned no significant difference in outcomes between DS and CS.



Study	Year of publication	Population size	Primary endpoint/ Outcomes	Result
Byung Gyu Kim, et al [1].	2022	T: 72 DS: 34 CS: 38	Post-PPCI index of IMR	No differences
Mohammed Saad, et al [3].	2019	T: 342 DS: 171 CS: 171	CMR imaging, Clinical outcome (death, reinfarction, hospitalization for heart failure)	Significant difference.
Mariusz Gasior, et al [4].	2007	T: 227 DS: 110 CS: 107	Epicardial patency: TIMI scale, Myocardial patency: TMPG, ECG.	No significant difference.
Ramazan Ozdemir, et al [5].	2006	T: 50 DS: 25 CS: 25	Before and after the procedure TIMI flow and post-procedural cTFC.	Significant difference
Rémi Sabatier, et al [6].	June. 2002	T:130 DS: 65 CS: 65	No-reflow	No difference.
Christophe Loubeyre, et al [7].	Jan 2002	T: 206 DS: 102 CS: 104	TIMI frame count, EKG, death and recurrent infarction.	Microvascular injury: significant difference

Table 1: Summarizing results of all studies. T: total, DS: Direct stenting, CS: conventional stenting, TIMI: Thrombolysis In Myocardial Infarction, PPCI: primary percutaneous coronary intervention, IMR: index of microcirculatory resistance, CMR: cardiac magnetic resonance, TMPG: TIMI myocardial perfusion grade. cTFC: corrected TIMI frame count

Conclusion

DS is an interesting approach and more studies should be done to further investigate this technique.

References

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