

REALITY: A Trial of Transfusion Strategies for Myocardial Infarction and Anemia

Purpose: The study assessed cost-effectiveness and clinical outcomes of liberal vs restrictive red blood cell transfusion strategies in patients with acute MI and anemia.

Trial Design: N= 668, joint French/Spanish trial across 35 hospitals, Open label Randomized trial, All patients were with acute MI and $7 < \text{Hb} \leq 10 \text{g/dL}$ at any time during admission. In the restrictive strategy, transfusion was withheld unless hemoglobin dropped to 8 g/dL. In the liberal strategy, transfusion was given when hemoglobin was 10 g/dL or below

Primary Endpoints:

Clinical end point: Composite of major adverse cardiac events (MACE) at 30 days. MACE included death reinfarction, stroke, and emergency revascularization prompted by ischemia.

Cost-effectiveness endpoint: Incremental Cost-effectiveness ratio (ICER) at 30 days

Secondary: MACE at 1 year, cost-utility at 30-days and 1 year

	Restrictive RBC Transfusion Strategy (N=327 for protocol population and 342 for ITT)	Liberal RBC Transfusion Strategy (N=321 for protocol population and 324 for ITT)	Difference (95% CI)	Relative Risk (Restrictive vs Liberal)
MACE at 30 days per protocol population	n=36 (11.0%)	n=45 (14.0%)	-3.0% (-8.4%, 2.4%)	0.79
MACE at 30 days in ITT population	n=38 (11.1%)	n=46 (14.2%)	-3.1% (-8.4%, 2.3%)	0.78
Total 30 days cost (in Euros)	11,051	12,572	-1,521 (-3359, 318)	0.10

Results: This was the largest randomized trial comparing a restrictive versus liberal blood transfusion strategy in MI patients with anemia. The restrictive transfusion strategy was non-inferior (upper bound of confidence interval was 1.18 for protocol population) to a liberal strategy in preventing 30-day MACE, saves blood and is safe, thus supporting the use of restrictive strategy. Restrictive strategy had an 84% probability of being cost-saving while improving clinical outcomes.

