Abstract:

Cardioplegia has almost been synonymous with cardiac surgery for the past 40 years. However, its application greatly varies from practitioner to practitioner. The aim of this review is to isolate and provide an up-to-date systemic literature review of blood cardioplegia therapies that compare various temperatures of administration for patients undergoing coronary bypass grafting (CABG) with extracorporeal support. Randomized control trials comparing two cardioplegia temperatures in adult patient undergoing isolated CABG were eligible. Assessed outcomes were creatinine kinase MB (CK-MB) and lactate levels, rate of myocardial ischemic (MI) attacks, use of inotropes, need for intra-aortic balloon counter-pulsation (IABP), and length of stay (LOS).

- **Results**: Initial 2280 articles were screened to finally include 14 (n=4173) eligible studies. Six studies had a cumulative Cochrane bias grade of "low risk", five were "unclear", and the remaining three had "high" bias risk. Rate of MI, use of inotropes, use of IABP, and LOS were the same for both cold and warm cardioplegia. Warm cardioplegia produced lower serial CK-MB levels (n=3528) and higher serial lactates (n=122).

- **Conclusions**: The cumulative results of these studies cannot establish a cear tendency if cold or warm cardioplegia is better. Both patient cohorts have similar outcomes and rates of morbidity and mortality. It appears that both cold and warm cardioplegia can be given safely for intervals of up to 20 minutes in patients undergoing isolated CABG.

- **Keywords**: cardioplegia, cold, tepid, normothermic, warm, coronary artery bypass, extracorporeal circulation, cardiopulmonary bypass, cardiomyoprotection, systemic review.