



Blood Circulation

How Korean Red Ginseng exerts the restorative effect on microvascular integrity in patients with acute myocardial infarction



Background



Theory

The effect of Korean red ginseng (KRG) on coronary flow reserve:

Baseline coronary flow reserve (CFR) has been used as a predictor of improvement in left ventricular function after AMI (acute myocardial infarction) however, baseline and 8-month follow-up CFR values have never been compared in ST-elevation AMI patients after KRG extract administration. Therefore, in this study, the effects of red ginseng extract on circulating angiogenic cell mobilization and improvement of microvascular integrity were compared in ST-segment elevation AMI patients during an 8-month follow-up period.



Method

The first prospective, randomized, single-blind study:

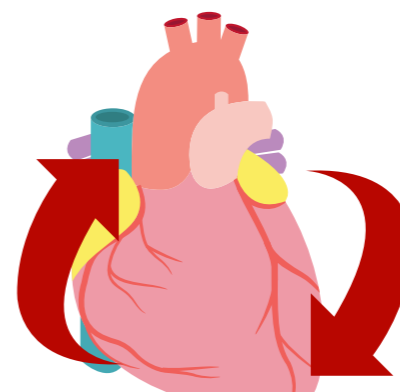
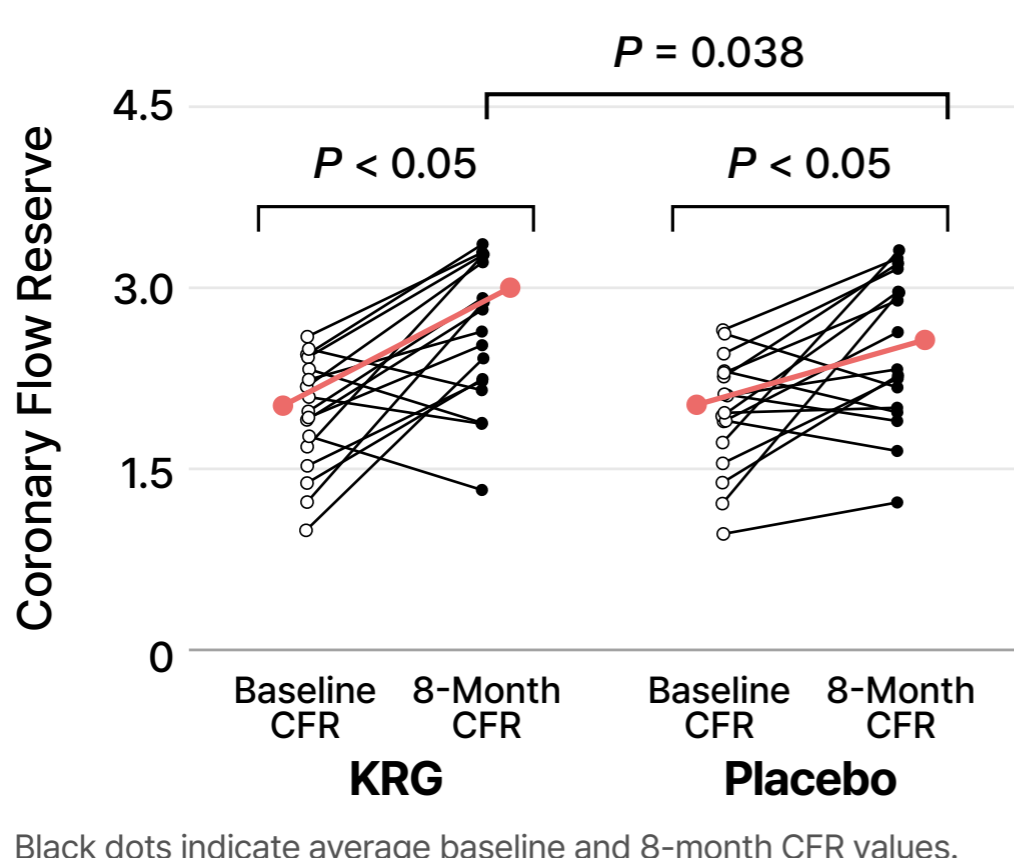
AMI patients ($n = 50$) were randomly assigned to KRG group (3 g/day, $n = 25$) or the placebo group ($n = 25$) after coronary stenting. CFR was measured at baseline and at 8 months with an intracoronary Doppler wire. Serial changes in the absolute numbers of circulating angiogenic cells were measured at baseline, 1 day, 5 days and at 8 months.



Outcome

With 50 AMI patients (25 taking placebo, 25 taking KRG) for 8 months

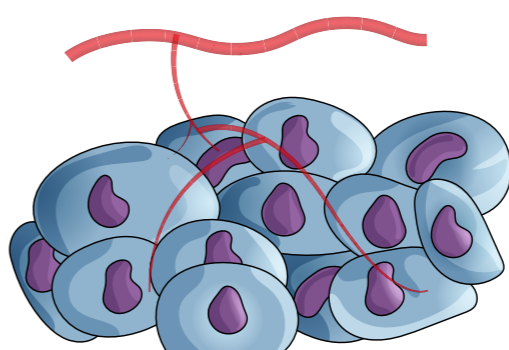
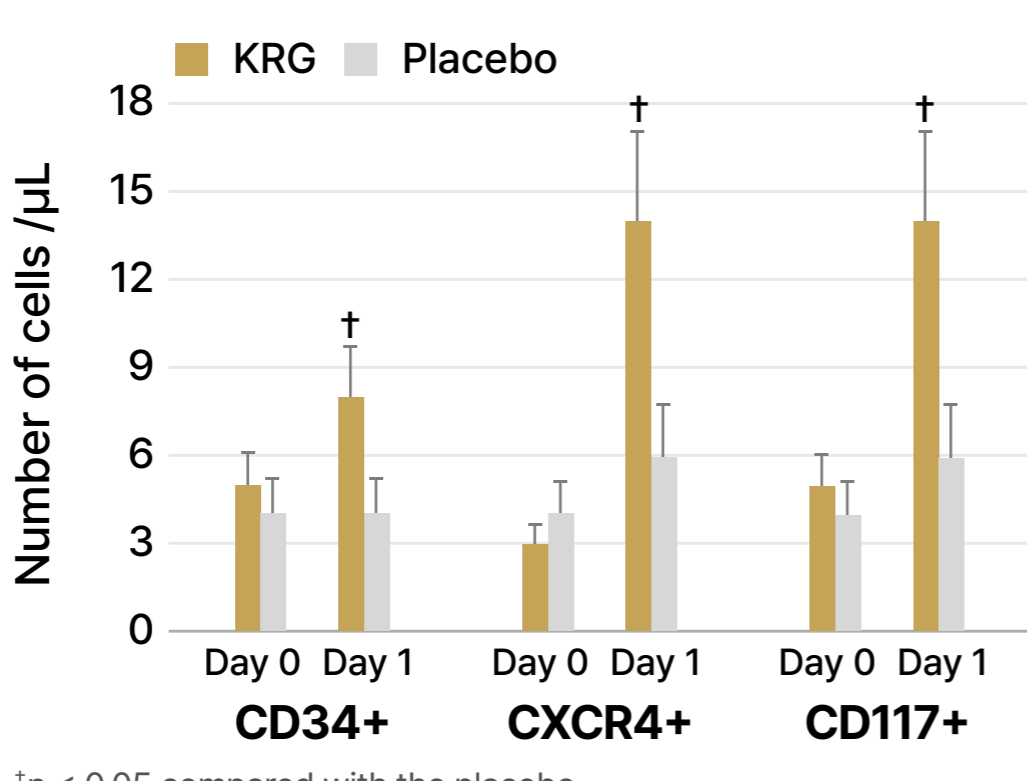
Coronary flow measurement



The increases from baseline in CFR at 8 months were significantly greater in KRG group than placebo group.

CFR (coronary flow reserve): How much your blood flow to your coronary arteries can increase under stress.

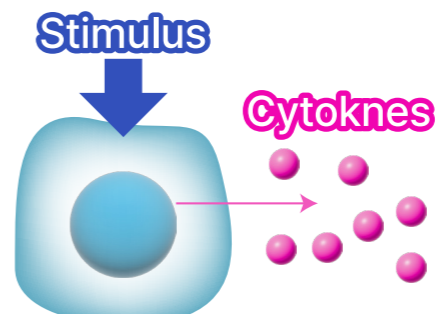
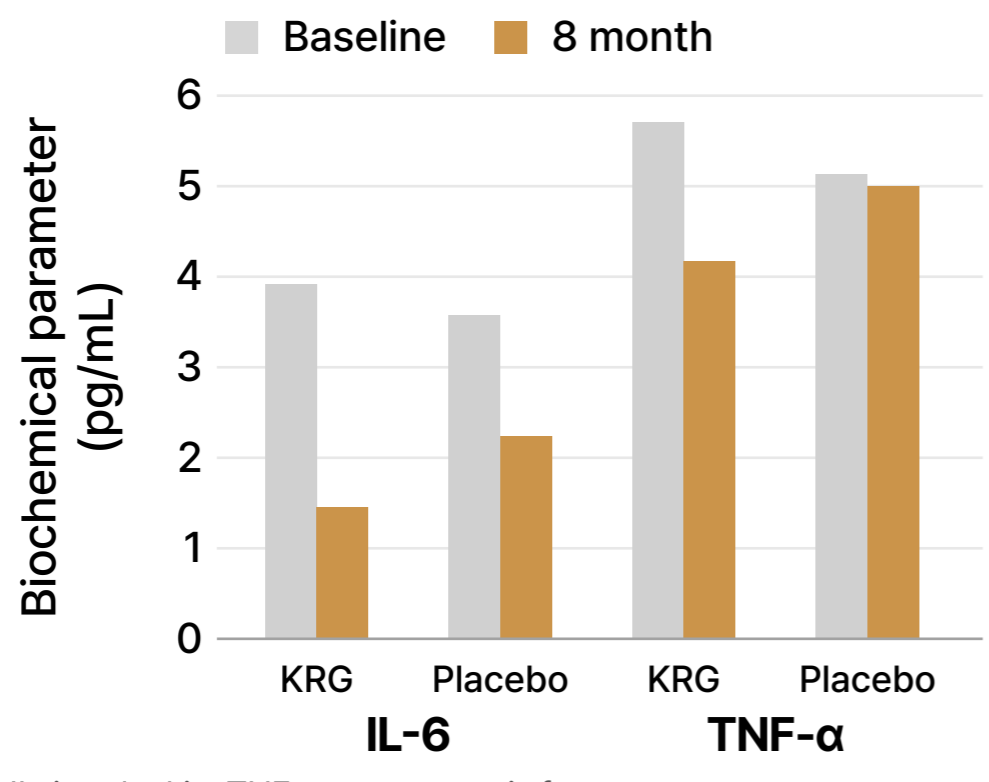
Circulating angiogenic cells



The serial increase in the absolute number of CD34+, CXCR4+ and CD117+ cells were significantly greater in KRG group.

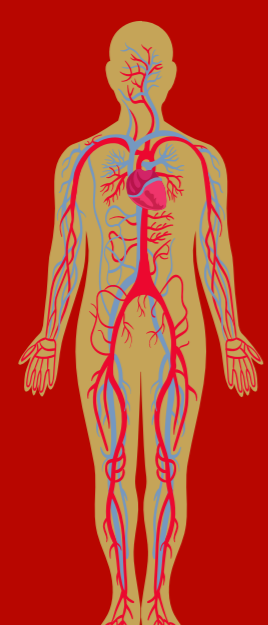
Circulating angiogenic cells are to represent a cell population enriched in monocytes and exert their angiogenic effects.

Inflammatory cytokine



Levels of inflammatory markers decreased significantly after 8 months compared to baseline in both groups, and the decreases in IL-6 and TNF-α from baseline levels were significantly greater in KRG group than placebo.

Inflammatory cytokine plays an important role in mediating the innate immune response, being produced by and involved in the upregulation of inflammatory reactions.



Impact



Improvement of coronary flow reserve and increase of circulating angiogenic cells

KRG improved CFR in first ST-elevation and increased circulating angiogenic cell mobilization and decreased inflammation in AMI patients during the 8-month follow-up.

Conclusion

The benefit of Korean Red Ginseng on blood circulation in patients with acute myocardial infarction

3g /day of KRG for 8 months is an effective and safe treatment for first ST-elevation AMI patients, possibly by restoration of microvascular function.