Introduction:
Atelectasis in post cardiac surgery patients is more common compared to non-cardiac surgery, and may lead to ventilation/perfusion mismatch, infection, and an increase in ICU stay. A postoperative recruitment manoeuvre (RM) to increase aeration and lung oxygenation is clinical routine. In intensive care patients with severe respiratory failure, RM in the prone position may increase survival and/or oxygenation. The object was to compare prone to supine RM, regarding dorsal aeration and lung oxygenation in the extubated patient.

Methods:
A prospective randomized controlled trial in postoperative uncomplicated cardiac surgery patients. Subjects were randomized to RM in the prone or supine position, 15 patients in each group. The primary endpoints were ventilation distribution and end-expiratory lung volume measured by Electrical Impedance Tomography and lung oxygenation, early after extubation.

Results:
The dorsal tidal volume in arbitrary units (AU) after extubation was 363 (CI 0.95: 283-443) and 212 (CI 0.95: 170-254) in the prone and supine group respectively, p<0.001, d=1.30. The dorsal ΔEELV (AU) was 724 (CI 0.95: 456-992) and -163 (CI 0.95: -252- -73) in the prone and supine group respectively, p<0.001, d=2.46. The PaO₂/FiO₂ ratio after extubation was 46.6 (CI 0.95: 40.7-53.0) and 39.3 (CI 0.95: 34.8-43.8) in the prone and supine group respectively, p=0.041, d=0.74.

Conclusion:
Prone positioning plus RM in the prone position early after cardiac surgery is superior to supine RM, regarding dorsal aeration and lung oxygenation after extubation. This new beneficial recruitment strategy reduces dorsal atelectasis.