The mechanical impact of the device on the atrial deformation was more obvious in the Amplatzer group compared to the Helex and Cardioseal groups. The latter two devices are more softer compared to the Amplatzer, the soft device may not distort the atrial septum and may reduce stress between the device and the heart.

Associated atrial aneurysm can also contribute to the reduced atrial septal deformation after device closure using Amplatzer, since four patients in the Amplatzer group had an associated aneurysm and only one patient in the Cardioseal and Helex groups had respectively an aneurysm.

6 Conclusions:

(1) Transcatheter closure of PFO does not affect the left ventricular function or right ventricular function. (2) Transcatheter closure of PFO may affect septal early diastolic motion and deformation. (3) Whether there is a difference between the results with the Amplatzer, Helex and Cardioseal occluder could not be proved by this study (because of different group sizes).

7 Summary

Background: The patent foramen ovale (PFO) is the most common congenital heart disease in adults. It permits interatrial right-to-left shunt which has been demonstrated to be related to paradoxical embolism. Paradoxical embolism through a patent foramen ovale has been recognized as a potential cause of transient ischemic attack (TIA) and cryptogenic stroke. Percutaneous transcatheter closure of PFO is now used as an alternative to surgery or long-term anticoagulation for the treatment of patients with paradoxical embolism and PFO. It has a high success rate, low incidence of hospital complications, low frequency of recurrent systemic embolic events and avoids some of the disadvantages of open-heart surgery. Although many studies