2 Aim of the study

The purpose of this study was:
I) using the noninvasive method TDI and strain rate imaging to assess the influence of PFO closure procedure on the RV and LV function through evaluating the longitudinal mitral and tricuspid annular motion.
II) to assess the influence of PFO closure procedure on the atrial septal motion.
III) to compare the influence of different PFO occluders on the ventricular function and atrial septal motion.

3 Patients and methods

3.1 Patient groups

The study group consisted of 50 PFO patients with paradoxical embolism and TIA. There were 28 male and 22 female patients; the median age was was 41.4 years (range, 16 to 78 years). The patients were randomly divided into three groups. The PFO was closed with the Amplatzer occluder in 20 patients (group A), with the Cardioseal occluder in 14 patients (group B) and with the Helex occluder in 16 patients (group C). The size of implanted Amplatzer occluders ranged from 18 to 25 mm (median 23.5 mm), of the Cardioseal occluders from 23 to 28 mm (median 25.7 mm), and of the Helex occluders from 15 to 35 mm (median 25 mm). All patients were in sinus rhythm and had no associated congenital heart defects.

3.2 Standard echocardiography

Trans-thoracic echocardiography (TEE) was performed one day pre- and post-intervention using a Vingmed System Five Ultrasound system (GE, Horten, Norway) equipped with tissue Doppler imaging (TDI) capabilities. The patients were examined in the left lateral decubitus position with a 2.5-3.5 MHz sector probe. ECG was simultaneously recorded. Data acquisition was performed during normal respiration. Standard two-dimensional imaging, and colour and pulsed Doppler (of the mitral and