Objectives To assess hypoxic pulmonary hypertension and right cardiac remodelling in quiescent condition at different altitudes for subjects that emigrate from lower altitude to high altitude over 2 years.

Methods Hundred subjects who have emigrated were randomly selected and were divided into five groups according to living altitude height (3000 m, 3500 m, 4000 m, 4500 m and 5000 m), and each group had 20 subjects. They were then assessed for right cardiac remodelling and the pulmonary arterial pressure was measured using mobile multifunction echocardiography, the assessment being performed in which the subjects were in quiescent condition.

Results In the groups living at an altitude height above 4000 m for 2 years, the pulmonary arterial pressure was elevated, and there was the right cardiac remodelling including right ventricular and right atrial enlargement, right ventricular wall thickening and dilatation of the main pulmonary artery (in control group, RV 19.21±1.82 mm, RA 24.17±1.59 mm, RVW 4.57±0.56 mm, MPA 20.19±1.73 mm, PASP 28.36±4.32 mm Hg; and in emigrant group, RV 27.52±1.78 mm, RA 36.61±4.39 mm, RVW 7.23±0.58 mm, MPA 27.32±1.85 mm, PASP 48.56±4.58 mm Hg, p<0.01).

Conclusions The incidence of pulmonary hypertension showed positive correlation with high altitude and emigration altitude time. For altitude of 4500 m and above, and longer emigration altitude time, the incidence of hypoxic pulmonary hypertension was higher, and right cardiac remodelling were more prevalent (p<0.01).