Transcranial Doppler in the blue stander: the platypnoea-orthodeoxia syndrome revisited

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DESCRIPTION

A young man was referred to our neurosonology laboratory after an endovascular closure of an ostium secundum interatrial communication. The procedure led to control of strenuous exercise dyspnoea. However, in the 1 month control follow-up visit the patient reported of shortness of breath when seated and standing, with a minimum right to left shunt in the bubble echocardiogram. On physical examination, cyanosis appeared only when standing, and oxygen saturation dropped to 70% from basal 99%.

The patient was monitored for microembolic signals using transcranial Doppler sonography (TCD, videos 1 and 2) lying, sitting and standing.

A platypnoea-orthodeoxia syndrome (POS) was diagnosed. The syndrome is characterised by dyspnoea that occurs in the upright position and is relieved by recumbency (platypnoea) and a significant drop in arterial oxygen saturation when moving from the supine position to the upright position (orthodeoxia). Position-dependent right-to-left shunting appears to underlie in POS.1 Contrast-enhanced transoesophageal echocardiography (cTOE, agitated saline) is the preferred diagnostic modality when intracardiac shunting is suspected. However, TCD has shown a sensitivity of 97% compared to cTOE with non-significant difference; it is the diagnostic test in the case of pulmonary arteriovenous malformations complementary to pulmonary ventilation-perfusion tests; its reported specificity is 98%.2 Effective Valsalva manoeuvre increases the sensitivity, but 10% of population may not have a temporal acoustic window. Therefore, TCD should be recommended as the first choice for screening because of its simplicity, non-invasive character, low cost and ability to assess the patient quickly in the supine as well as upright position.3

Learning points

▸ Knowledge of the patient’s history is pivotal in order to suspect platypnoea-orthodeoxia syndrome. The diagnostic test should be performed in the position that leads to dyspnoea.
▸ Transcranial Doppler with agitated saline contrast and Valsalva manoeuvre shows a sensitivity similar to contrast transoesophageal echocardiography.
▸ TCD does not require sedation and therefore allows the examination to be performed quickly in all three required positions.

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REFERENCES
