PFO closure in Sleep Apnea

Our thanks to:
G Agnoletti, L Iserin, A Lafont, M Desnos.
Service de Cardiologie Pédiatrique, Groupe Hospitalier Necker Enfants Malades, Paris

INTRASEPT™
Advancing Septal Closure Technology

INTRODUCTION

Obstructive sleep apnea (OSA) is a common sleep disorder affecting 24% and 9% of middle-aged men and women (1). OSA constitutes a major public health problem because of its high prevalence and its association with cardiovascular problems such as hypertension, ischemic heart disease, heart failure, stroke, pulmonary hyper-tension and arrhythmias (2). Additionally, right to left shunt through a patent foramen ovale (PFO) is frequent in affected patients (3).

CASE REPORT

A 42 year old man underwent a pneumological evaluation due to snoring, insomnia, and dyspnoea during mild exercise. A lung scan showed mild bilateral emphysema, spirometry demonstrated an obstructive pattern, polisomnography registered 44 episodes of apnea per hour of sleep. Nocturnal CPAP was started, allowing a reduction of apnea episodes to 3 per hour. A cardiological evaluation showed normal EKG and chest x-rays, normal systemic blood pressure and normal oxygen saturation at rest. Effort testing demonstrated a reduction in oxygen saturation from 98% to 75% at maximal exercise (200 Watts). Transesophageal echography (TEE) showed normal cardiac anatomy and function and demonstrated a patent foramen ovale, with spontaneous right to left shunt, more evident during Valsalva manoeuvre.

Figure #1

Percutaneous PFO closure was performed under local anesthesia, utilizing a 25 mm Intrasept PFO device (Cardia Inc., Eagan, MN USA). The device was inserted under fluoroscopy (Fig 1). TEE was performed before delivery and immediately after confirming complete PFO occlusion (Fig 2). Procedural time was 40 minutes and fluoroscopy time 4 minutes; no complications occurred.

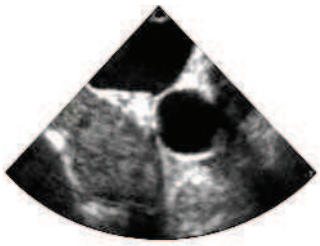

Figure #2

Immediately after discharge the patient described a complete resolution of symptoms and was able to perform strenuous physical activity. Effort test, performed 1 month after PFO closure, confirmed normal oxygen saturation during exercise.

References

1) Young T, Palta M, Dempsey J. The occurrence of sleep-disordered breathing among middle-aged adults. N Engl J Med 1993; 328:1230-1235

2) Wolk R, Kara T, Somers VK. Sleep-disordered breathing and cardiovascular disease. Circulation 2003; 108:9

3) Shanoudy H, Soliman A, Raggi P, Liu JW, Russell DC, Jarmukli NF. Prevalence of patent foramen ovale and its contribution to hypoxemia in patients with obstructive sleep apnea. Chest 1998; 113:91-6

CARDIA©