

## Valsalva manouever in diagnosing a patent foramen ovale

With great interest I have read the article entitled: "Use of Valsalva maneouver in the assesment of circulatory system" published in *Folia Cardiologica* [1]. It describes in detail the performance of the Valsalva maneouver, its mechanism and changes undergoing in the circulatory system during subsequent phases of the maneouver (heart rate, baroreflex, changes in hemodynamic parameters: blood pressure, stroke volume). In a further part of the article the authors present the use of Valsalva maneouver in the diagnosis of various cardiovascular disorders. What appears to be lacking, however, is the role of Valsalva maneouver in the assessment of intracardiac shunts, especially of a patent foramen ovale (PFO) and potential right-to-left shunt.

Transesophageal echocardiography with Valsalva maneouver and application of intravenous contrast is a "golden standard" in diagnosing the PFO. Transesophageal examination allows best visualization of the atria and atrial septum. Application of venous contrast (most often normal saline with air microbubbles) allows visualization of blood flow to the right atrium. During Valsalva maneouver performed by a patient with patent interatrial communication it comes to a passage of microbubbles from the right atrium to the left atrium through the PFO, what is caused by a transient increase of right atrial pressure. Such kind of examination allows a semi-quantitative, subjective evaluation of the degree of the shunt [2].

Nowadays, the Valsalva maneouver is performed also for the assesment of intracardiac shunts during transcranial duplex-ultrasonography. This examination allows detecting in brain circulation the contrast or air microbubbles injected intravenously, what confirms the presence of a shunt from venous bed into the systemic circulation. This examination is less strenuous for the patient, while its sensitivity and efficacy in right-to-left shunt diagnosis is comparable with echocardiography [3–5].

There has been growing interest in recent years in patent foramen ovale as a potential cause

of stroke and some types of migraine [6–8]. This interest is a result of new diagnostic as well as therapeutic methods. It has grown more common that a non-operative, percutaneous closure of the interatrial communication using kits is proposed to patients with a history of cryptogenic strokes, after proving right-to-left shunt through the foramen ovale during Valsalva maneouver [9–11].

### References

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