Saline poisoning caused by Laser-Photo-Vaporization XPS-180W: A different irrigation fluid absorption syndrome.

Acute pulmonary oedema and hyperchloremic metabolic acidosis without hyponatremia.

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Background:

Photoselective vaporization of the prostate (PVP) is an endoscopic urological technique using saline 0.9% as irrigation fluid, preventing the Transurethral Resection Syndrome (TURP). Fluid absorption is frequent, but clinical symptoms are rare and only mild to moderate. We present a case of irrigation fluid absorption syndrome in a PVP, with significant clinical manifestations.

Case Report:

75-years-old male was scheduled for a Laser PVP. The procedure lasted 35 min. under spinal anaesthesia. Ending the surgery patient becomes breathless, abdomen was distended and he has subconjunctival oedema. Abdominal ultrasound found free fluid and he was reoperated objectifying a capsular perforation. During the procedure he developed acute pulmonary oedema. Blood test results can be seen in the table. Furosemide 40 mgr. was prescribed to achieve negative fluid balance, with good response allowing extubation after 7 hours, and -2240 ml of balance. He left the recovery room next day.

FUROSEMIDE

Discussion:

Complications of endourologic procedures are well-known¹. The most feared is the TURP associated to Monopolar Transurethral Resection; it results from the absorption of hypotonic irrigation solution (glycine). It leads to a fluid overload with hyponatremia, causing neurological and haemodynamic symptoms. New technologies try to prevent it, replacing the irrigation fluid for saline solution; that's the case of the Green-Light laser vaporization, which has been shown to be safe and effective². Fluid absorption during the PVP using the 2nd generation laser has been assessed and reported but without clinical correlation³. Our patient had hypervolemia, leading to lung and metabolic failure. The haemodynamic alterations are similar to those described in the TURP, but with hyperchloremic metabolic acidosis and no hyponatremia. They both have the same treatment, forcing negative balance and support measures.

Learning points:

Laser-photo-vaporization of the prostate is not a risk-free technique; reabsorption of the irrigation isotonic fluid (saline solution 0.9) can lead the patient to a dangerous situation. Fortunately serious complications are uncommon.

References:

1. Contemporary surgical treatment of benign prostatic hyperplasia. Nunes RLV et al. Rev Assoc Med Bras (1992). 2017 Aug;63(8):711-716.
2. Multicenter international experience of 532 nm-laser photo-vaporization with Greenlight XPS in men with large prostates (prostate volumen>100 cc) Meskawi M et al. World J Urol. 2017 Oct;35(10):1603-1609.
3. Prospective evaluation of irrigation fluid absorption during pure transurethral bipolar plasma vaporisation of the prostate using expired-breath ethanol measurements. Hermanns T. et al. BJU Int. 2013 Sep;112(5):647-54.