



Volumetric overload shocks in the patho-etiology of the transurethral resection prostatectomy syndrome and acute dilution hyponatraemia

Ahmed N. Ghanem,
Mansoura University



Abstract

Hypothesis: The transurethral resection of the prostate (TURP) syndrome is defined as severe vascular hypotension reaction that complicates endoscopic surgery as a result of massive irrigating fluid absorption causing severe acute dilution hyponatraemia (HN) of <120 mmol/l. The vascular shock is usually mistaken for one of the recognized shocks and Volumetric Overload Shock (VOS) type 1 (VOS1) is overlooked.

Objective: To report VOS and its successful treatment of hypertonic sodium therapy (HST) that is lifesaving. To report that Starling's law is wrong and the correct replacement is the hydrodynamic of the porous orifice (G) tube.

Methods: We conducted the following studies:

1. Prospective study on 100 consecutive TURP patients among whom 10 developed the TURP syndrome with acute dilution HN and vascular shock.
2. A case series of 23 TURP syndrome cases.
3. A physics study on the hydrodynamic of the G tube.

Results: The TURP syndrome is defined as severe vascular hypotension reaction that complicates endoscopic surgery as a result of massive irrigating fluid absorption causing severe acute dilution HN of <120 mmol/l. The vascular shock is usually mistaken for one of the recognized shocks and Volumetric Overload Shock type 1 (VOS1) is overlooked making Volumetric Overload Shock Type 2 (VOS2) unrecognizable. In adults VOS1 is induced by the infusion of 3.5-5 liters (Figure 1) of sodium-free fluids and is known as TURP syndrome or HN shock. VOS2 is induced by 12-14 liters of sodium-based fluids and is known as the adult respiratory distress syndrome. The most effective treatment for VOS1 and VOS2 is HST of 5%NaCl and/or 8.4%NaCo₃. The literature on TURP syndrome is reviewed and the underlying patho-etiology

is discussed. Starling's law proved wrong and the correct replacement is the hydrodynamic of the G tube.

Conclusion: Volumetric overload causes shock of two types, VOS1 and VOS2. VOS 1 is characterized with acute dilution HN and is known as the TURP syndrome. Mistaking VOS1 for a recognized shock and treating it with vascular expansion is lethal while HST is life-saving. Starling's law which dictates the faulty rules on fluid therapy proved wrong and the correct replacement is the hydrodynamic of the G tube.

Suggested References

1. Ghanem AN, Ward JP. Osmotic and metabolic sequelae of volumetric overload in relation to the TURP syndrome. *Br J Uro* 1990; 66: 71-78
2. Harrison III RH, Boren JS, Robinson JR. Dilutional hyponatraemic shock: another concept of the transurethral prostatic reaction. *J Uro*. 1956; 75 (1): 95-110.
3. Arieff AI. Hyponatraemia, convulsion, respiratory arrest and permanent brain damage after elective surgery in healthy women. *N Engl J Med* 1986; 314 (24): 1529-34.
4. Ashbaugh DG, Bigelow DB, Petty TL, Levine BE. Acute respiratory distress in adults. *Lancet* 1967; ii: 319-23.
5. Danowski TS, Winkler AW, Elkington JR. The treatment of shock due to salt depression; comparison of isotonic, of hypertonic saline and of isotonic glucose solutions. *J. Clin. Invest.* 1946; 25: 130

**Biography:**

Dr Ghanem was educated in Egypt and qualified in 1974, Mansoura University, Egypt. He obtained FRCSEd in 1983 and MD (Uro.) 1988. He gained postgraduate experience in UK where he was promoted in posts up to the consultant level. He practiced as consultant Urologist in UK, Saudi Arabia and Egypt. During his career he reported over 100 articles. He discovered two new types of vascular shocks, proved that one physiological law is wrong and provided an alternative. He resolved the puzzles of 3 clinical syndromes: TURP syndrome, LPHS and ARDS. He is now on an editorial board member and reviewer of many journals, and Editor-in-Chief to Surgical Medicine Open Access Journal (SMOAJ) while he is happily retired in Egypt dedicated to scientific medical reading and writing that helps the practicing physicians to practice precision medicine as well as correctly directing the future research..

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