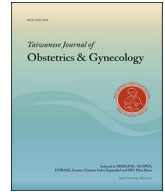




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## Correspondence

### OHIA syndrome: Stop before it is too late!



Dear Editor,

We read with great interest the case report authored by Ming-Tse Wang et al. [1]. The Authors report three cases of operative hysteroscopy intravascular absorption (OHIA) syndrome occurred during resectoscopic myomectomy. All the patients developed severe symptoms as acute pulmonary edema, electrolytes imbalance and one of them needed intensive care admission. In the first two cases described, surgery was conducted with a bipolar current resectoscope and 0.9% normal saline as distension media; procedures lasted 205 and 105 min, and the irrigation amount was 19,100 ml input with a deficit of 11,900 ml and 7500 ml input and 3000 ml output in the first and second case, respectively. In the third case, myomectomy was performed with a monopolar current resectoscope and hypo-osmolar fluid for uterine distension; the procedure lasted 180 min and a net irrigation fluid of 2400 ml was reported. Despite severe clinical symptoms and laboratory values impairment were developed by patients during the surgery, in all cases operative hysteroscopy was anyway accomplished [1].

Basing on an analysis of 28 complicated OHIA (the three cases described and 25 retrieved by a literature review), the Authors concluded that clinicians should use isotonic electrolyte-containing distension media and bipolar electrosurgical instruments in operative hysteroscopies, and fluid status should be monitored closely, particularly at net and total irrigation amounts >3000 and > 8000 mL, respectively. In particular, when the analysis was performed discriminating data for isotonic and hypotonic distension media, the net result of median irrigation in the OHIA group was 4250 mL in the isotonic distension media subgroup and 2400 mL in the hypotonic distension media subgroup. Moreover, the Authors suggested to monitor irrigation amounts at least every 30 min and minimize intrauterine pressure to reduce intravascular and intraperitoneal absorption [1].

We believe that conclusions drawn by Authors deserve some considerations, as it could bear to erroneous as well as dangerous interpretations.

Since the beginning, the fluid overload has represented the main limit in operative hysteroscopy and, especially in case of myomectomy, the cause of multiple steps procedures [2]. The OHIA syndrome is a dangerous complication which may occur during operative hysteroscopy due to a fluid distension overload, leading to life-threatening events. BSGE/ESGE guideline on management of fluid distension media in operative hysteroscopy suggested a maximum fluid deficit of 1000 mL to healthy patients, when using hypotonic solutions and a maximum limit for isotonic solution of 2500 mL. Lower thresholds for fluid deficit should be considered in the elderly and women with cardiovascular, renal or other comorbidities (i.e. 750 mL and 1500 mL in case of use of hypotonic

and isotonic solution, respectively) [3]. Despite the use of iso-osmolar solution allows to have a higher level of safety than hypo-osmolar solutions in terms of liquid absorbed, OHIA may develop also during hysteroscopic procedures with saline solution and bipolar current.

We are concerned about the conclusion of the Authors in which an erroneous message could emerge regarding the safety limit in order to avoid OHIA syndrome, which are in contrast with those suggested by international societies [3].

Waiting for more robust scientific evidences regarding the safety limit of distension media absorbed, we believe that it is better to stop the procedure before a potential life-threatening for the patient, regardless from the type of liquid utilized. We agree that a scrupulous intraoperative fluid balance is of crucial importance, however the suggestion of doing it every 30 min seems too lax. Indeed, the distension media absorbed may depend on several variables linked to patient age, medical conditions, menopausal status, pharmacological therapy and to surgical variables (intrauterine pressure, type of surgery, surgeon's skills, intravenous fluids infused by anesthesiologist). In any case, checking after more than 30 min could be already too much. For instance, a case of cardiac arrhythmia from absorption of 2500 mL (plus 1000 mL intravenous fluids infused by anesthesiologist) normal saline during a hysteroscopic myomectomy lasted 50 min was reported in a 36-year-old healthy woman [4].

In all 3 cases reported by the Authors, the safety limit suggested by guidelines have been overcome without stopping the procedure and this issue easily explains the reason why OHIA syndromes developed. Moreover, patients' medical history was unremarkable, except for one who suffered from chronic hypertension; rigorous assessment of these aspects could be of help to avoid catastrophic endings. Hysteroscopic surgery allows the surgeon to stop the procedure in case an excess of fluid absorption is detected and therefore to schedule a second-step of the treatment. This matter should be well explained to the patient at the time of a pre-surgical counseling.

Finally, in case of use of monopolar resectoscope, we suggest referring to the sodium blood concentration as reliable landmark, which (in case of need) can be evaluated in real-time during surgery, along with fluid balance. Our group recently reported a series of 1434 cold loop resectoscopic myomectomies [5]: the surgical procedures were interrupted when absorption reached 1000 mmL or the blood sodium level reached the critical value limit of 125 mEq/L. Following this protocol, only the 16.3% of patients needed a multiple step treatment and no case of OHIA was reported.

We hope new studies will be published with the aim to investigate the variables influencing the distension media absorption, in

order to confirm or improve the actual threshold suggested by scientific societies.

In the meantime, caution should be used in following different limits, making a scrupulous intraoperative fluids balance, regardless of the type of distension fluid utilized, and consider stopping the procedure before it is too late!

#### Declaration of competing interest

The Authors have nothing to disclose.

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