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Retrograde Intra Renal Surgery and Safety: Pressure and Temperature. A Systematic Review

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Purpose of review

Retrograde intra renal surgery (RIRS) with laser lithotripsy represents the gold-standard to treat renal stones up to 20 mm. Controlling intraoperative parameters such as intrarenal pressure (IRP) and temperature (IRT) is mandatory to avoid complications. This article reviews advances in IRP and IRT over the last 2 years.

Recent findings

We conducted a PubMed/Embase search and reviewed publications that include temperature and pressure during RIRS. Thirty-four articles have been published which met the inclusion criteria. Regarding IRP, a consensus has emerged to control IRP during RIRS, in order to avoid (barotraumatic and septic) complications. Several monitoring devices are under evaluation but none of them are clinically approved for RIRS. Ureteral access sheath, low irrigation pressure and occupied working channel help to maintain a low IRP. Robotic systems and suction devices would improve IRP intraoperative management and monitoring. IRT determinants are the irrigation flow and laser settings. Low power settings (<20 W) with minimal irrigation flow (5-10 ml/min) are sufficient to maintain low IRT and allows continuous laser activation.

Summary

Recent evidence suggests that IRP and IRT are closely related. IRP depends on inflow and outflow rates. Continuous monitoring would help to avoid surgical and infectious complications. IRT depends on the laser settings and the irrigation flow.



[Link to abstract](#)

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