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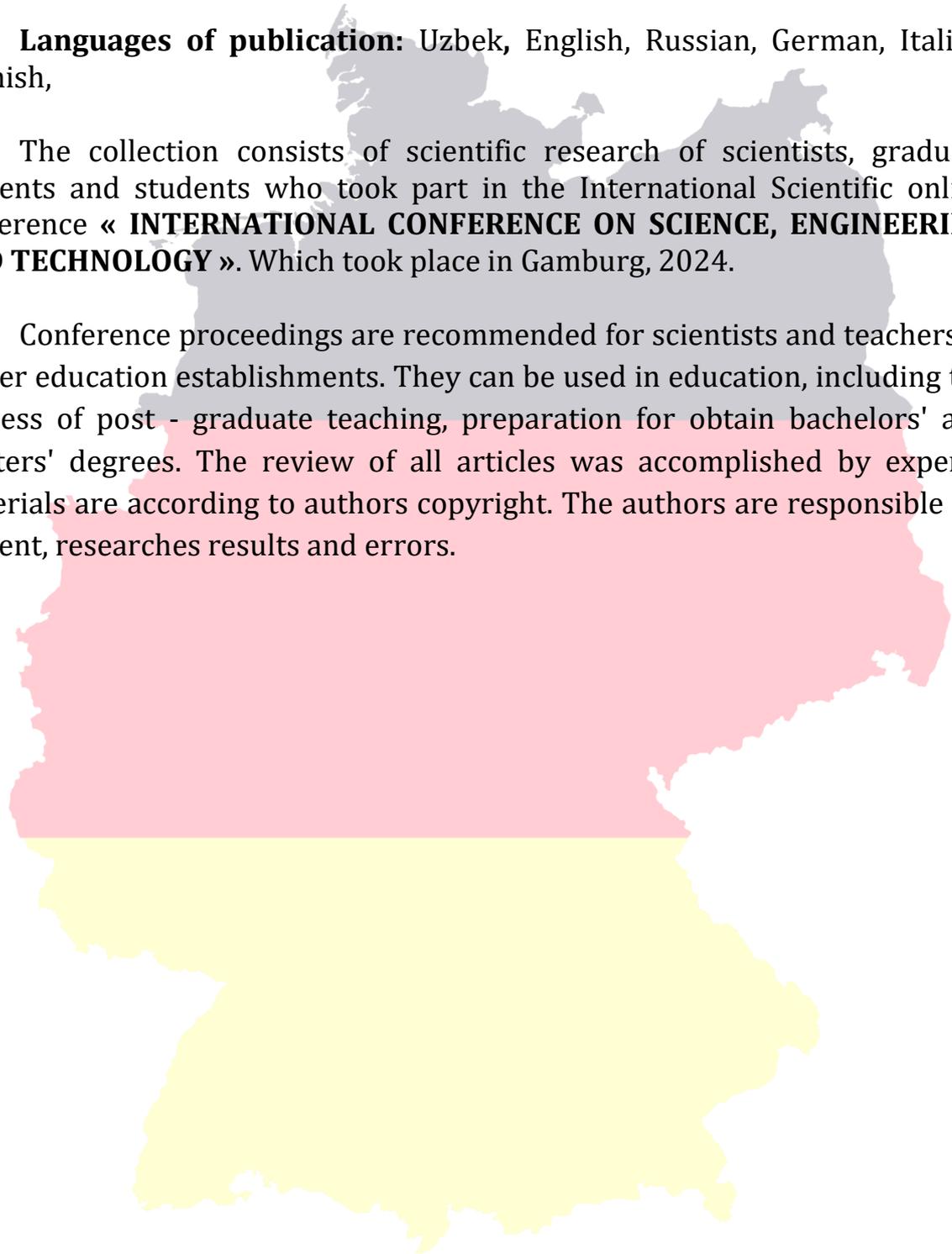


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IMPROVING THE TREATMENT OF COMPLICATIONS IN ENDOUROLOGICAL OPERATIONS FOR UROLITHIASIS

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Relevance of the topic: Managing complications in endourological procedures like PCNL and URS requires addressing key factors. Elevated intrarenal pressure (IRP) increases infection and sepsis risk, which can be reduced by optimizing irrigation flow and using ureteral access sheaths (Chew et al., 2023; Tonyali et al., 2023). Thermal injury during laser lithotripsy can be minimized by adjusting energy settings and using chilled irrigation fluids (Tonyali et al., 2023). RIRS complications can be prevented through careful planning and interdisciplinary teamwork (Malkhasyan et al., 2024; Edison et al., 2023). Fluoroscopy-free techniques reduce radiation exposure while maintaining safety (Davis et al., 2023). Preoperative assessment of comorbidities and infection history is crucial for reducing risks (Chew et al., 2023; Edison et al., 2023). Combining technological improvements, procedural strategies, and patient-specific care enhances the safety and effectiveness of endourological treatments.

Purpose of the study: The purpose of this study is to minimize complications in endourological procedures by optimizing IRP management, adjusting laser settings, using ureteral access sheaths, and adopting fluoroscopy-free techniques to enhance patient safety and outcomes.

Materials and Methods: This study was conducted at Fergana Private Hospital "Uromed" between 2021 and 2023. A total of 58 patients diagnosed with kidney stones underwent endourological procedures. Among them, 36 patients were treated using endoscopic methods, including percutaneous nephrolithotomy (PCNL), ureteroscopy (URS), and retrograde intrarenal surgery (RIRS). Preoperative assessments included patient history, laboratory tests, and imaging studies. Intrarenal pressure (IRP) management strategies, laser energy adjustments, and optimized irrigation techniques were implemented to reduce complications. Postoperative outcomes were assessed based on infection rates, thermal injuries, stone-free rates, and overall patient recovery.

Results and Discussion: Endoscopic treatment of kidney stones showed a high success rate, with 89% of patients achieving complete stone clearance. The use of ureteral access sheaths and controlled irrigation significantly reduced IRP-related complications, such as infections and sepsis. Among the 36 patients undergoing endoscopic methods, 5 (13.8%) developed mild post-procedural infections, which were managed conservatively. No severe complications, including sepsis or major hemorrhage, were reported. The

application of fluoroscopy-free techniques in selected cases minimized radiation exposure without increasing procedural risks. Effective preoperative assessment helped identify high-risk patients, allowing for tailored treatment plans that enhanced safety and outcomes.

Conclusion: Endourological treatment of kidney stones, particularly with optimized procedural strategies, is effective in reducing complications and improving patient outcomes. Proper IRP management, laser energy adjustments, and meticulous planning contribute to safer and more successful interventions. Recommendations:

1. Implement standardized IRP control measures, including optimized irrigation flow and ureteral access sheaths, to minimize infection risk.
2. Encourage the adoption of fluoroscopy-free techniques in experienced centers to reduce radiation exposure while maintaining procedural safety.

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