

Evaluation of Guidelines for Surgical Management of Urolithiasis



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Purpose: Many urological societies have provided evidence-based guidelines to help the urologist make therapeutic choices. However, the recommendations in these guidelines may be heterogeneous because they were developed using various methods. The objective of this study was to review key guidelines on the surgical management of urinary stones to provide practical guidance for clinical application.

Materials and Methods: Guidelines on urolithiasis from all international urological societies were searched through the society websites. A search on PubMed® and Medline® restricted to publications in English was also performed for guidelines published between January 1, 2010 and July 1, 2017. Only the latest versions of guidelines containing an evaluation of the level of evidence and the grade of recommendation were included in the final analysis. All recommendations on surgical stone management and recommended techniques for each surgical modality were included. The AGREE II (Appraisal of Guidelines for Research and Evaluation II) instrument was used to assess the quality of the included guidelines.

Results: Three international guidelines were included in analysis, including those of AUA (American Urological Association)/ES (Endourological Society), EAU (European Association of Urology) and SIU (Société Internationale d'Urologie)/ICUD (International Consultation on Urological Diseases). We highlighted the heterogeneity in the level of evidence and the grade of recommendation which arose due to the different methods of evaluations that had been adopted. Despite this our review highlighted the considerable similarities among the guidelines. In certain specific situations for which no good evidence was available the recommendations could only be based on expert opinion.

Conclusions: An option to provide clear guidance to the urologist might be to combine these international guidelines into one to reduce confusion about the surgical management of urolithiasis.

Abbreviations and Acronyms

AGREE II = Appraisal of Guidelines for Research and Evaluation II

AUA = American Urological Association

EAU = European Association of Urology

ES = Endourological Society

fURS = flexible URS

GOR = recommendation grade

ICUD = International Consultation on Urological Diseases

LOE = evidence level

OCEBM = Oxford Centre for Evidence-Based Medicine

PCNL = percutaneous nephrolithotomy

SIU = Société Internationale d'Urologie

SWL = shock wave lithotripsy

URS = ureteroscopy

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THE prevalence of urolithiasis has increased during the last decades and now affects approximately 9% of the American adult population with comparable increases in other developed countries.^{1–9} It was estimated that 25% of these patients will undergo a surgical procedure to remove stones.¹⁰ In the last 3 decades the surgical management of kidney stones has undergone many technological advances with the development of SWL, rigid and flexible URS, and PCNL. During this period each of these treatment modalities has benefited from many improvements along with changes in indications and many opportunities for critical evaluation. Many scientific organizations have provided evidence-based guidelines to define the role of each modality in the surgical management of urinary stones and help the urologist make therapeutic choices. Unfortunately the methods used to develop these recommendations may vary among guideline panels. Moreover, with the constant release of new scientific publications guidelines quickly become outdated and require frequent updating.¹¹

Recently efforts have been made to harmonize recommendations. In 2016 AUA and ES together edited recommendations on the surgical management of urolithiasis and in 2017 EAU also provided updated urolithiasis recommendations.^{12–15} SIU collaborated with ICUD in 2014 to publish recommendations on stone disease.¹⁶ The objective of this study was to review key guidelines on the surgical management of urinary stones to provide practical guidance for clinical application.

MATERIALS AND METHODS

Guidelines on urolithiasis from all international urological societies (Africa, Asia, Europe, India, and North and South America) were searched through the society websites. A search on PubMed and Medline restricted to publications in English was also performed for guidelines published between January 1, 2010 and July 1, 2017 using the search terms urolithiasis, nephrolithiasis, guidelines and stone disease. Only the latest versions of guidelines containing an evaluation of LOE and GOR were included in the final analysis. National guidelines were excluded as they do not provide meta-analyses, LOE or GOR and most of them use international guidelines as support.

All recommendations on surgical stone management and recommended techniques of each surgical modality (SWL, URS and PCNL) were included. Specific clinical situations were also assessed, such as pregnancy, kidney transplantation, steinstrasse, horseshoe kidney and residual fragments.

The AGREE II instrument was used to assess the quality of the included guidelines.¹⁷ It consists of 23 key items graded from 1—strongly disagree to 7—strongly agree organized in 6 domains, followed by 2 global rating items (overall assessment). Each domain captures a unique dimension of guideline quality. The domains include evaluation of the scope and purpose of the guidelines to evaluate a specific health question and the target population as well as stakeholder involvement in which appraisers focus on the inclusion of individuals from all relevant professional groups, whether the views and preferences of the target population were sought and whether the target users of the guidelines are clearly defined. The other domains evaluated are the rigor of development, which is an assessment of the gathering and synthesizing of recommendations, and the clarity of presentation, which is whether the recommendations are specific and unambiguous, the presentation of the condition or health issue is clear and the key recommendations are easily identifiable.

One domain is applicability, which considers whether factors facilitating or hindering clinical application are described and whether advice is provided on how recommendations could be put into practice. Moreover, this domain evaluation looks for monitoring or auditing criteria and whether there is consideration of the potential resource implications of applying the recommendations. The last domain is the editorial independence of evaluating the views of funding bodies to determine whether they influenced the guideline content. It is also noted whether competing interests of the guideline development groups are reported and adequately addressed.

Each domain score is calculated by summing all the scores of the individual items in a domain and by scaling the total as a percent of the maximum possible score for that domain using the formula, (total obtained domain score from all appraisers – minimum possible score/maximum possible score – minimum possible score) × 100. The overall assessment indicates the overall quality of the guideline as a whole and whether it can be recommended for routine practice.

According to the recommendation of the AGREE II consortium each guideline was evaluated by 4 appraisers (BP, SD, JB and SP) to increase the reliability of the assessment. All authors independently assessed the guidelines after undergoing training using the online AGREE II tutorial and practice exercise.¹⁸ The 4 reviewers were urologists experienced with urolithiasis management and 2 had experience with writing guidelines and rating GORs.

RESULTS

Only 3 international guidelines were included in the final analysis. The other international guidelines did not provide specific guidelines on treatment of

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