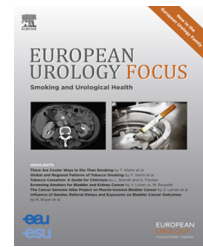


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## Guidelines

# European Association of Urology Guidelines on Renal Transplantation: Update 2018

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### Article info

#### Article history:

Accepted July 11, 2018

#### Associate Editor:

Christian Gratzke

#### Keywords:

EAU guidelines  
Guidelines  
Renal transplantation

### Abstract

**Context:** The European Association of Urology (EAU) panel on renal transplantation (RT) has released an updated version of the RT guidelines.

**Objective:** To present the 2018 EAU guidelines on RT.

**Evidence acquisition:** A broad and comprehensive scoping exercise was performed, encompassing all areas of RT guidelines published between January 1, 2007, and May 31, 2016. Databases covered by the search included Medline, Embase, and the Cochrane Libraries. Previous guidelines were updated, and levels of evidence and grades of recommendation were assigned.

**Evidence synthesis:** It is strongly recommended to offer pure or hand-assisted laparoscopic/retroperitoneoscopic surgery as the preferential technique for living donor nephrectomy. Decisions on the acceptance of a donor organ should not be based on histological findings alone since this might lead to an unnecessarily high rate of discarded grafts. For ureterovesical anastomosis, a Lich-Gregoir-like extravesical technique protected by a ureteral stent is the preferred technique for minimisation of urinary tract complications. It is also strongly recommended to perform initial rejection prophylaxis with a combination therapy comprising a calcineurin inhibitor (preferably tacrolimus), mycophenolate, steroids, and an induction agent (either basiliximab or anti-thymocyte globulin).

The long version of the guidelines is available at the EAU website (<http://uroweb.org/guidelines>).

**Conclusions:** These abridged EAU guidelines present updated information on the clinical and surgical management of RT for incorporation into clinical practice.

**Patient summary:** The European Association of Urology has released the renal transplantation guidelines. The implementation of minimally invasive surgery for organ retrieval and the latest evidence on transplant surgery as well as on immunosuppressive regimens are key factors for minimisation of rejection and achievement of long-term graft survival.

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<https://doi.org/10.1016/j.euf.2018.07.014>  
2405-4569/

Please cite this article in press as: Rodríguez Faba O, et al. European Association of Urology Guidelines on Renal Transplantation: Update 2018. Eur Urol Focus (2018), <https://doi.org/10.1016/j.euf.2018.07.014>

## 1. Introduction

This article presents the updated European Association of Urology (EAU) guidelines for renal transplantation (RT) [1]. The main objective is to provide urologists and kidney transplant surgeons with practical guidance on the clinical management of renal transplantation, focusing on the medical and surgical management. Clinical guidelines represent a summary of the highest level of evidence available to the experts; however, following the guidelines will not automatically result in the best outcome. Clinical guidelines can never replace clinical and surgical expertise in the management of RT candidates, but they may help to focus decisions and to take personal values and individual circumstances of patients into account.

## 2. Evidence acquisition

A broad and comprehensive literature search covering all sections of published RT guidelines was performed. Databases searched included Medline, EMBASE, and the Cochrane Libraries, covering a time frame between January 1, 2007, and May 31, 2016. A total of 2601 unique records were identified, retrieved, and screened for relevance. For each recommendation within the guidelines, there is an accompanying online strength rating form which addresses a number of key elements, namely:

1. The overall quality of the evidence which exists for the recommendation—references used in this text are graded according to a classification system modified from the Oxford Centre for Evidence-Based Medicine Levels of Evidence [2].
2. The magnitude of the effect (individual or combined effects).
3. The certainty of the results (precision, consistency, heterogeneity, and other statistical or study-related factors).
4. The balance between desirable and undesirable outcomes.
5. The impact of patient values and preferences on the intervention.
6. The certainty of those patient values and preferences.

The strength of each recommendation is determined by the words “strong” or “weak” [3].

## 3. Organ retrieval and transplantation surgery

### 3.1. Living donor nephrectomy

There is strong evidence in support of laparoscopic living donor nephrectomy (LLDN), including several systematic reviews and meta-analyses which have compared LLDN with open surgery [4]. LLDN is associated with similar rates of graft function and rejection, urological complications, and patient and graft survival. However, measures related to analgesic requirements, pain, hospital stay, and time to return to work are significantly better for laparoscopic procedures [5].

### 3.2. Organ preservation

In the absence of a cost-utility analysis, the results of the meta-analysis of the randomised controlled trials (RCTs) comparing University of Wisconsin (UW) solution, Celsior solution, and Marshall's hypertonic citrate solution in standard cadaver donors indicate that these cold storage solutions are equivalent [6]. For living donors, in whom immediate kidney transplantation is planned, perfusion with crystalloid solution is sufficient. Initial flushing with cold preservation solution followed by ice storage represents the standard method for kidney preservation. However, the limitations of static cold storage in preserving marginal organs such as expanded criteria donor kidneys has led to the increased use of dynamic methods [7].

### 3.3. Donor kidney biopsies

Donor kidney biopsies can serve different purposes, including histological assessment of organ quality prior to transplantation and histological analysis of focal lesions, especially if there is a suspicion of neoplasia. There is no consistent association between histological lesions observed in donor kidney biopsies and post-RT outcomes. Specifically, there is no agreement on prognostically relevant lesions and how they should be scored. Grading systems for donor kidney biopsies have not yet been developed and lesion scoring in pre-RT biopsies is mostly based on the Banff consensus for post-RT renal allograft pathology, which is supported by the 2007 Banff Conference report [8]. An adequate biopsy reaches beyond the immediate subcapsular area ( $\geq 5$  mm) and contains  $\geq 25$  glomeruli and  $\geq 1$  artery.

Needle biopsies, wedge biopsies, or specimens obtained with a skin punch biopsy device will result in equally adequate biopsies if sampling is properly performed. Because obtaining adequate biopsies with 18G needles is difficult and requires multiple cores, 14 or 16G needle biopsies are preferred. The evidence suggests that decisions on the acceptance of a donor organ should not be based on histological findings alone; histology has to be evaluated in context, taking into account donor and recipient clinical parameters, including perfusion parameters where available [9].

### 3.4. Living and deceased donor implantation surgery

Preoperative hyperkalaemia is the most common indication for pre-operative haemodialysis, although its routine use is not indicated owing to the potential to delay transplantation and increase cold ischemia time [10]. Based on low level of evidence studies, continuing anti-platelet therapy with aspirin, ticlopidine, or clopidogrel does not confer a significantly greater risk of peri- or postoperative complications [11]. None of the current major thrombosis prevention guidelines directly address thromboprophylaxis in the renal transplant perioperative period. A small RCT [12] showed no difference in early postoperative graft loss or thromboembolic complications with or without prophylactic anticoagulation.

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