

# Management of acute kidney injury (AKI) in burn ICU patients

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**Background of the study:** Acute kidney injury (AKI) is a common complication in critically ill burn patients and is associated with a number of serious adverse outcomes. The clinical decision-making process related to the management of AKI in burn patients is complex and has not been sufficiently standardized. The main aim of this study was to explore the diagnostic approach and clinician's attitudes toward the management of AKI and RRT in burn patients around the world.

**Methods:** The questionnaire was widely distributed among the members of International Society for Burn Injury (ISBI), who were invited to complete the survey. Data collection and report was compliant with the Checklist for Reporting Results of Internet E-Surveys (CHERRIES) Web-survey guidelines. The survey form with multiple-choice questions was divided into 3 parts: a. physician and institutional demographics, b. AKI diagnostic information, c. technical aspects of RRT.



**Results:** A total of 44 respondents worldwide submitted valuable data in the 2-month period. Of the 935 members who received the newsletter, 4.7% clicked on a questionnaire link; all physicians who opened the link were completed the questionnaire (yielding a response rate of 100% of the viewers). Of all respondents, 43.2% were from Europe, 30% from North America, 7% from South-East Asia 2.3% from Africa and 18.2% from other regions.

Respondents declared their profession as follows: intensive care specialists (47,7%), burn surgeons (22,7%), general surgeons (20.5%), other professionals taking care of burns in the ICU (10%).

Almost thirty two percent of the respondents (31.8%) declare that nephrologists are responsible for the management of RRT in their Burn Centers, 38.6% declare that attending medical doctors are responsible for the management and 29.6% of respondents state that a team of medical specialists including nephrologists and attending physicians are responsible for the management of AKI.

93.1% of participants declare that they use specific definitions to detect AKI, while 11.4% declare the use of renal ultrasonography for AKI diagnosis.

CRRT appeared to be the most preferred option by 43.2% of participants, followed by intermittent hemodialysis (25%), and prolonged intermittent RRT (6.8%). The expertise to deliver a modality and the availability of resources were considered important factors when selecting the optimal RRT modality by 20.5% and 29.6% of respondents. The use of specific serum biomarkers for AKI diagnosis are stated by 16% of respondents; 25% of specialists refer to the use of biomarkers of AKI as a criterium for discontinuing the RRT.

Almost half of respondents (54.6%) use ultrasound guidance for temporary catheter placement for the initiation of RRT. Femoral vena and right jugular vena are the most frequently used location for RRT temporary catheter placement.

Regional citrate anticoagulation is the preferable technique of anticoagulation in two thirds of centers (61.4%), however, low molecular weight heparins and unfractionated heparin are also used for anticoagulation in 38.6% and 36.4% of centers, respectively.

**Conclusions:** The majority of burn specialists use specific consensus classifications to detect acute kidney injury. Continuous renal replacement therapy appeared to be the most preferred option, while the expertise to deliver a particular modality and resources availability play a significant role in modality selection. The use of ultrasound and specific biomarkers for AKI evaluation is infrequent in routine clinical practice.