



A Critical Appraisal of Clinical Practice Guidelines on Acute Kidney Injury Using the AGREE II Instrument

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Background and Rationale

Acute kidney injury (AKI) represents a rapid decline in kidney function as a result of kidney damage or failure, and is strongly associated with increased morbidity and mortality. Management of AKI, globally is highly variable due to knowledge-to-action gaps and inconsistent access to resources. Clinical practice guidelines can provide important guidance and, when evidence warrants strong recommendations, can help to minimize variability in care; however, evaluating the trustworthiness of recommendations requires appraisal of guideline quality. The objective of this systematic survey is to critically appraise clinical practice guidelines (henceforth referred to as guidelines) addressing management of AKI. We also examined the differences and agreement between guideline recommendations.

Methods

We systematically searched MEDLINE, the National Guideline Clearinghouse, Guideline International Network, and Turning Research into Practice, without language restrictions. We imported all citations into the Covidence online software program. Guidelines that address diagnosis, monitoring or management of AKI in adult or pediatric populations were eligible for our review. We restricted our review to guidelines that generate their own recommendations, versus those that adapt or adopt existing guideline recommendations. We evaluated the most recent version of each guideline, if multiple versions existed. We included guidelines, policy statements and policy documents. We excluded guidelines addressing prevention of AKI and those specific to kidney transplant recipients. Teams of two reviewers, independently and in duplicate, screened titles and abstracts and potentially eligible full text reports to determine eligibility, and appraised the reporting quality of AKI guidelines using the Advancing Guideline Development, Reporting and Evaluation in Health Care instrument II (AGREE). The AGREE II instrument (www.agreetrust.org) contains 23 items divided into six domains: scope and purpose (questions 1-3); stakeholder involvement (questions 4-6); rigour of development (questions 7-14); clarity of presentation (questions 15-17); applicability (questions 18-21); and editorial independence (questions 22-23) (Table 1). A seven-point scale is used to answer each question with a range of options from 1 (strongly disagree) to 7 (strongly agree). We calculated standardized scores ranging from 0% to 100% for each domain. We reported mean values (SD) when data was normally distributed, and median values (inter-quartile range; IQR) when it was not. All data analyses were performed using Stata (StataCorp. 2013. Stata Statistical Software: Release 13. College Station, TX: StataCorp LP).

Objectives: To appraise clinical practice guidelines on AKI

Results

Eleven guidelines published from 1997 to 2016 addressing the diagnosis, monitoring or management of AKI proved eligible. We included three guidelines for the management of the hemolytic uremic syndrome, one guideline for the management of the hepato-renal syndrome and one guideline for the management of the cardiorenal syndrome. Two guidelines included recommendations on nutrition in AKI. Only one guideline made recommendations for the pediatric patient population. The National Institute for Health and Care Excellence (NICE) and Kidney Disease: Improving Global Outcomes (KDIGO) guidelines performed best with respect to AGREE II criteria; only one other guideline warranted high scores on three domains.

A MEDLINE:

The search strategy for OvidSP MEDLINE (1946 to December **Week 1 2016**) retrieved a total of 1454 of which 1254 were unique references not duplicated in our other searches. The strategy includes a combination of MeSH descriptors and free text terms for AKI

Database: OVID Medline Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid MEDLINE(R) 1946 to Present

Search Strategy for MEDLINE:

- 1 azotemia/ or azotemi*.mp. (3226)
- 2 uremia/ or uremi*.mp. (34373)
- 3 1 or 2 (372405)
- 4 acute kidney injury.mp. or exp Acute Kidney Injury/ (46170)
- 5 acute kidney injury/di, dt, ep, mo [Diagnosis, Drug Therapy, Epidemiology, Mortality] (10292)
- 6 (acute adj3 (kidney or renal)).ti.ab. (46219)

	Item 1 Objectives are specifically described	Item 2 The health question is specifically described.	Item 3 The population to whom the guideline is meant to apply is specifically described.	Total
Appraiser 1				
Appraiser 2				
Appraiser 3				

Discussion

Conclusions: Only two of these guidelines, the KDIGO and NICE guidelines, met most criteria of the AGREE II instrument.

Domain 1. Scope and Purpose
1. The overall objective(s) of the guideline is (are) specifically described
2. The health question(s) covered by the guideline is (are) specifically described.
3. The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described.
Domain 2. Stakeholder Involvement
4. The guideline development group includes individuals from all the relevant professional groups.
5. The views and preferences of the target population (patients, public, etc.) have been sought.
6. The target users of the guideline are clearly defined.
Domain 3. Rigour of development
7. Systematic methods were used to search for evidence.
8. The criteria for selecting the evidence are clearly described.
9. The strengths and limitations of the body of evidence are clearly described.
10. The methods for formulating the recommendations are clearly described.
11. The health benefits, side effects, and risks have been considered in formulating the recommendations.
12. There is an explicit link between the recommendations and the supporting evidence.
13. The guideline has been externally reviewed by experts prior to its publication.
14. A procedure for updating the guideline is provided.
Domain 4. Clarity of Presentation
15. The recommendations are specific and unambiguous
16. The different options for management of the condition or health issue are clearly presented.
17. Key recommendations are easily identifiable.
Domain 5. Applicability
18. The guideline describes facilitators and barriers to its application.
19. The guideline provides advice and/or tools on how the recommendations can be put into practice.
20. The potential resource implications of applying the recommendations have been considered.
21. The guideline presents monitoring and/ or auditing criteria.
Domain 6. Editorial Independence
22. The views of the funding body have not influenced the content of the guideline.
23. Competing interests of guideline development group members have been recorded and addressed.
Overall Assessment
A. The rating of the overall quality of the guideline
B. The guideline would be recommended for use in practice.

Key References

1. Excellence NHaC. Acute kidney injury: Prevention, detection, and management up to the point of renal replacement therapy. London: National Institute for Health and Care Excellence, 2013.
2. Diagnosis and management of acute kidney injury in patients with cirrhosis: revised consensus recommendations of the International Club of Ascites, Paolo Angeli, 2015
3. Guideline for the investigation and initial therapy of diarrhea-negative hemolytic uremic syndrome. Gema Ariceta 2009
4. A.S.P.E.N. Clinical Guidelines: Nutrition Support in Adult Acute and Chronic Renal Failure Rex O. Brown 2010
5. Clinical Practice Guidelines for the Management of Atypical Hemolytic Uremic Syndrome in Korea. Hae Il Cheo 2016
6. Acute Renal Failure in the 21st Century: Recommendations for Management and Outcomes Assessment Thomas D. DuBose, 1997
7. Kidney Disease: Improving Global Outcomes (KDIGO) Acute Kidney Injury Work Group. KDIGO Clinical Practice Guideline for Acute Kidney Injury. Kidney inter., Suppl. 2012; 2: 1–138.
8. Renal Association Clinical Practice Guidelines on Acute Kidney Injury, Andrew Lewington 2010
9. Clinical Practice Guidelines for supplemental therapies and issues, Scott W. Klarenbach 2008
10. Guidelines for the management and investigation of hemolytic uremic syndrome, Takashi Igarashi, 2014
11. Northern Ireland Guidelines for Acute Kidney Injury, 2014

