

# Contents

## IX Preface

McCullough, P.A. (Novi, Mich.); Kellum, J.A. (Pittsburgh, Pa.);  
Mehta, R.L. (San Diego, Calif.); Murray, P.T. (Dublin); Ronco, C. (Vicenza)

### 1 Acute Dialysis Quality Initiative (ADQI)

Ronco, C. (Vicenza); Kellum, J.A. (Pittsburgh, Pa.); Bellomo, R. (Heidelberg, Vic.);  
Mehta, R.L. (San Diego, Calif.)

### 5 Implementation of Novel Biomarkers in the Diagnosis, Prognosis, and Management of Acute Kidney Injury: Executive Summary from the Tenth Consensus Conference of the Acute Dialysis Quality Initiative (ADQI)

McCullough, P.A. (Warren, Mich./Southfield and Novi, Mich./Madison Heights, Mich./Detroit, Mich.); Bouchard, J. (Montréal, Que.); Waikar, S.S. (Boston, Mass.); Siew, E.D. (Nashville, Tenn.); Endre, Z.H. (Christchurch); Goldstein, S. (Cincinnati, Ohio); Koyner, J.L. (Chicago, Ill.); Macedo, E. (São Paulo); Doi, K. (Tokyo); Di Somma, S. (Rome); Lewington, A. (Leeds); Thadhani, R. (Boston, Mass.); Chakravarthi, R. (Albany, N.Y.); Ise, C. (Rotterdam); Okusa, M.D. (Charlottesville, Va.); Duranteau, J. (Bicetre); Doran, P. (Munich); Yang, L.; Jaber, B.L. (Boston, Mass.); Meehan, S. (Chicago, Ill.); Kellum, J.A. (Pittsburgh, Pa.); Haase, M. (Magdeburg); Murray, P.T. (Dublin); Cruz, D. (Vicenza); Maisel, A. (San Diego, Calif.); Bagshaw, S.M. (Edmonton, Alta.); Chawla, L.S. (Washington, D.C.); Mehta, R.L. (San Diego, Calif.); Shaw, A.D. (Durham, N.C.); Ronco, C. (Vicenza); for the Acute Dialysis Quality Initiative (ADQI) Consensus Group

### 13 Diagnosis of Acute Kidney Injury Using Functional and Injury Biomarkers: Workgroup Statements from the Tenth Acute Dialysis Quality Initiative Consensus Conference

McCullough, P.A. (Detroit, Mich.); Shaw, A.D. (Durham, N.C.); Haase, M. (Magdeburg); Bouchard, J. (Montreal, Que.); Waikar, S.S. (Boston, Mass.); Siew, E.D. (Nashville, Tenn.); Murray, P.T. (Dublin); Mehta, R.L. (San Diego, Calif.); Ronco, C. (Vicenza); for the ADQI 10 Workgroup

- 30 Differential Diagnosis of AKI in Clinical Practice by Functional and Damage Biomarkers: Workgroup Statements from the Tenth Acute Dialysis Quality Initiative Consensus Conference**  
Endre, Z.H. (Sydney, N.S.W./Christchurch); Kellum, J.A. (Pittsburgh, Pa.); Di Somma, S. (Rome); Doi, K. (Tokyo); Goldstein, S.L. (Cincinnati, Ohio); Koyner, J.L. (Chicago, Ill.); Macedo, E. (São Paulo); Mehta, R.L. (San Diego, Calif.); Murray, P.T. (Dublin); for the ADQI 10 Workgroup
- 45 Use of Biomarkers to Assess Prognosis and Guide Management of Patients with Acute Kidney Injury**  
Cruz, D.N. (Vicenza); Bagshaw, S.M. (Edmonton, Alta.); Maisel, A. (San Diego, Calif.); Lewington, A. (Leeds); Thadhani, R. (Boston, Mass.); Chakravarthi, R. (Hyderabad); Murray, P.T. (Dublin); Mehta, R.L. (San Diego, Calif.); Chawla, L.S. (Washington, D.C.); for the ADQI 10 Workgroup
- 65 Physiological Biomarkers of Acute Kidney Injury: A Conceptual Approach to Improving Outcomes**  
Okusa, M.D. (Charlottesville, Va.); Jaber, B.L. (Boston, Mass.); Doran, P. (Dublin); Duranteau, J. (Le Kremlin-Bicêtre); Yang, L. (Beijing); Murray, P.T. (Dublin); Mehta, R.L. (San Diego, Calif.); Ince, C. (Rotterdam); for the ADQI 10 Workgroup
- 82 Pathophysiology of the Cardiorenal Syndromes: Executive Summary from the Eleventh Consensus Conference of the Acute Dialysis Quality Initiative (ADQI)**  
McCullough, P.A. (Warren, Mich./Southfield and Novi, Mich./Madison Heights, Mich./Detroit, Mich.); Kellum, J.A. (Pittsburgh, Pa.); Haase, M. (Magdeburg); Müller, C. (Basel); Damman, K. (Groningen); Murray, P.T. (Dublin); Cruz, D. (Vicenza); House, A.A. (London, Ont.); Schmidt-Ott, K.M. (Berlin); Vescovo, G. (Vicenza); Bagshaw, S.M. (Edmonton, Alta.); Hoste, E.A. (Gent); Briguori, C. (Naples); Braam, B. (Edmonton, Alta.); Chawla, L.S. (Washington, D.C.); Costanzo, M.R. (Naperville, Ill.); Tumlin, J.A. (Chattanooga, Tenn.); Herzog, C.A. (Minneapolis, Minn.); Mehta, R.L. (San Diego, Calif.); Rabb, H. (Baltimore, Md.); Shaw, A.D. (Durham, N.C.); Singbartl, K. (Pittsburgh, Pa.); Ronco, C. (Vicenza); for the Acute Dialysis Quality Initiative (ADQI) Consensus Group
- 99 Pathogenesis of Cardiorenal Syndrome Type 1 in Acute Decompensated Heart Failure: Workgroup Statements from the Eleventh Consensus Conference of the Acute Dialysis Quality Initiative (ADQI)**  
Haase, M. (Magdeburg); Müller, C. (Basel); Damman, K. (Groningen); Murray, P.T. (Dublin); Kellum, J.A. (Pittsburgh, Pa.); Ronco, C. (Vicenza); McCullough, P.A. (Warren, Mich./Southfield and Novi, Mich./Madison Heights, Mich./Detroit, Mich.); for the Acute Dialysis Quality Initiative (ADQI) Consensus Group
- 117 Pathophysiology of Cardiorenal Syndrome Type 2 in Stable Chronic Heart Failure: Workgroup Statements from the Eleventh Consensus Conference of the Acute Dialysis Quality Initiative (ADQI)**  
Cruz, D.N. (San Diego, Calif.); House, A.A. (London, Ont.); Schmidt-Ott, K.M. (Berlin); Vescovo, G. (Vicenza); Kellum, J.A. (Pittsburgh, Pa.); Ronco, C. (Vicenza); McCullough, P.A. (Warren, Mich./Southfield and Novi, Mich./Madison Heights, Mich./Detroit, Mich.); for the Acute Dialysis Quality Initiative (ADQI) Consensus Group

**137 Cardiorenal Syndrome Type 3: Pathophysiologic and Epidemiologic Considerations**

Bagshaw, S.M. (Edmonton, Alta.); Hoste, E.A. (Gent); Braam, B. (Edmonton, Alta.); Briguori, C. (Naples); Kellum, J.A. (Pittsburgh, Pa.); McCullough, P.A. (Warren, Mich./Southfield and Novi, Mich./Madison Heights, Mich./Detroit, Mich.); Ronco, C. (Vicenza); for the Acute Dialysis Quality Initiative 11 Working Group

**158 Cardiorenal Syndrome Type 4: Insights on Clinical Presentation and Pathophysiology from the Eleventh Consensus Conference of the Acute Dialysis Quality Initiative (ADQI)**

Tumlin, J.A. (Chattanooga, Tenn.); Costanzo, M.R. (Naperville, Ill.); Chawla, L.S. (Washington, D.C.); Herzog, C.A. (Minneapolis, Minn.); Kellum, J.A. (Pittsburgh, Pa.); McCullough, P.A. (Warren, Mich./Southfield and Novi, Mich./Madison Heights, Mich./Detroit, Mich.); Ronco, C. (Vicenza); for the Acute Dialysis Quality Initiative (ADQI) 11 Consensus Group

**174 Cardiorenal Syndrome Type 5: Clinical Presentation, Pathophysiology and Management Strategies from the Eleventh Consensus Conference of the Acute Dialysis Quality Initiative (ADQI)**

Mehta, R.L. (San Diego, Calif.); Rabb, H. (Baltimore, Md.); Shaw, A.D. (Durham, N.C.); Singbartl, K. (Hershey, Pa.); Ronco, C. (Vicenza); McCullough, P.A. (Warren, Mich./Southfield and Novi, Mich./Madison Heights, Mich./Detroit, Mich.); Kellum, J.A. (Pittsburgh, Pa.); for the Acute Dialysis Quality Initiative (ADQI) 11 Working Group

**195 Appendix 1: 10th Acute Dialysis Quality Initiative (ADQI) Consensus Group**

**197 Appendix 2: 11th Acute Dialysis Quality Initiative (ADQI) Consensus Group**

**199 Author Index**

**200 Subject Index**