Acute Renal Failure of Nosocomial Origin

by Prof. Dr. med. Mark Dominik Alscher, Prof. Dr. med. Christiane Erley, and Prof. Dr. med. Martin K. Kuhlmann in issue 9/2019

Contrast Agents Better Than the General Perception

In their review (*Figure 1*) on the management of acute kidney injury (AKI), the authors recommend to “avoid contrast medium”, which, I assume, refers to X-ray contrast agents (1). However, the role of iodine-based contrast agents is undergoing a reevaluation process in the more recent literature. For example, in their meta-analysis McDonald et al. (2) arrived at the conclusion that increases in creatinine levels among inpatients were rather related to causes other than contrast agent administration. Similarly, the 2018 guideline of the European Society of Urogenital Radiology (ESUR) (3) takes this into account. The current state of knowledge on contrast-induced nephropathy is summarized by the scientific expert committee of the German Medical Association, stating that the risk of contrast-induced nephropathy (CIN)—if this condition really exists—is significantly smaller than previously assumed and may even be zero in the low-risk group with an eGFR >30 mL/min/1.73 m² (4). In high-risk patients with an eGFR <30 mL/min/1.73 m², the benefits should be weighed against the risks, as a precaution, even though no differences in mortality were found between AKI and CIN. The categorical rejection of the use of X-ray contrast agents should not be accepted without comment. If the use of a contrast agent is indicated, patients will rather benefit from the diagnostic result of radiography with contrast agent than from not using a contrast agent because of nephroprotective considerations.

DOI: 10.3238/arztebl.2019.0434a

References

1. Alscher MD, Erley C, Kuhlmann MK: Acute renal failure of nosocomial origin. *Dtsch Arztebl Int* 2019; 116: 149–58.
2. McDonald JS, McDonald RJ, Comin J, et al.: Frequency of acute kidney injury following intravenous contrast medium administration: a systematic review and meta-analysis. *Radiology* 2013; 267: 119–28.
3. van der Molen AJ, Reimer P, Dekkers IA, et al.: Post-contrast acute kidney injury—Part 1: Definition, clinical features, incidence, role of contrast medium and risk factors: Recommendations for updated ESUR Contrast Medium Safety Committee guidelines. *Eur Radiol* 2018; 28: 2845–55.
4. Michaely H: Wertung des aktuellen Wissensstands zur CIN. *Fortschr Röntgenstr* 2018; 190: 74–5.

Dr. med. Hubertus Klaus

Leipzig, Germany; hubertus-klaus@t-online.de

In Reply:

Thank you for this most welcome comment. We greatly appreciate it. Two years ago, Prof. Erley highlighted in an editorial for the Drug Commission of the German Medical Association that preliminary data, casting doubt on the nephrotoxicity of iodine-based contrast agents, had become available (1).

Nevertheless, the guidelines of various societies continue to contain a warning that iodine-based contrast agents may cause acute kidney injury.

Over the next years, further data will need to be collected to enable full clarification of the conflicting evidence on this subject. This is why we decided—also after consultation with the experts—to include this point in our list (2).

We deliberately decided to not differentiate between iodine-based and gadolinium-based contrast agents, because the safety of gadolinium-based contrast agents in case of an acute kidney injury has yet to be demonstrated, too.

Examples of safety concerns include reduced excretion and prolonged circulation with potential deposits and tissue binding as well as the extensive fibrosis observed with certain products.

DOI: 10.3238/arztebl.2019.0434b

References

1. Erley C: Akutes Nierenversagen nach Kontrastmittel. *Arzneiverordnung in der Praxis* 2017; 4: 173–6.
2. Alscher MD, Erley C, Kuhlmann MK: Acute renal failure of nosocomial origin. *Dtsch Arztebl Int* 2019; 116: 149–58.

Prof. Dr. med. Mark Dominik Alscher

Abteilung für Allgemein Innere Medizin
und Nephrologie am Zentrum für Innere Medizin (Abteilung ZIM IV)
des Robert-Bosch-Krankenhauses Stuttgart
Germany
dominik.alscher@rbk.de

Prof. Dr. med. Christiane Erley

Medizinische Klinik II mit Dialyse des St. Joseph Krankenhauses, Berlin, Germany

Prof. Dr. med. Martin K. Kuhlmann

Klinik für Innere Medizin – Nephrologie, Vivantes Klinikum im Friedrichshain, Berlin, Germany

Conflict of interest

The authors of both contributions declare that no conflict of interest exists.