

Metformin: updated guidance for use in diabetics with renal impairment

The Faculty of Clinical Radiology
The Royal College of Radiologists

Current advice from The Royal College of Radiologists (RCR) on the uses of iodinated contrast agents in patients taking metformin is based on guidance from the European Society of Urogenital Radiology (ESUR) and set out in the RCR publication, *BFCR(05)7 Standards For Iodinated Intravascular Contrast Agent Administration To Adult Patients*, page 13 which states:

Metformin is not recommended for use in diabetics with renal impairment, because it is exclusively excreted via the kidneys. Accumulation of metformin may result in the development of the serious complication lactic acidosis. Although the incidence of lactic acidosis following contrast administration in diabetic patients receiving metformin appears to be extremely low, extra care should be exercised in these patients [9].

Advice

- *If the serum creatinine is normal, and a low volume of contrast agent (up to 100 ml) is to be administered intravenously, no special precaution is required.*
- *If the serum creatinine is normal, but more than 100 ml of contrast agent or the intra-arterial route is to be used, metformin should be withheld for 48 hours after the procedure.*
- *If the serum creatinine is raised, the need for the contrast agent should be re-assessed. If contrast injection is deemed necessary, metformin should be withheld for 48 hours before and 48 hours after the contrast is given and the renal function re-assessed before restarting the metformin treatment.*

(The clinical team are, in any event, likely to change the medication in the light of the contraindication to administer metformin in the presence of renal impairment.)

After discussion and agreement with Dr Charlie Tomson (Consultant Nephrologist & Chair, UK Renal Registry and previous Chair of the group that developed the UK Chronic Kidney Disease guidelines), Dr Sameh Morcos and Dr Peter Dawson, and following changes to the ESUR guidelines (available at www.esur.org) I propose to change the guidelines to the following.

There is no need to stop metformin after contrast in patients with serum creatinine within the normal reference range and/or eGFR >60ml/min. If serum creatinine is above the normal reference range or eGFR is below 60, any decision to stop it for 48 hours should be made in consultation with the referring clinician

This reflects the lack of any valid evidence that lactic acidosis is really an issue after iodinated contrast in patients taking metformin, the problems caused to patients and clinicians by stopping the drug and its increasing use in poorly controlled diabetic patients regardless of renal function. It does, however, remain the case that renal function should be known in patients taking metformin who require intravenous or intra-arterial contrast agents.



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