N-Acetylcysteine
to prevent contrast induced nephropathy

Departments of Pharmacy, Cardiology and Nephrology

What is contrast induced nephropathy?
Contrast induced nephropathy is an injury to the kidneys caused by some of the substances used to enhance x-ray images. These substances contain iodine and are called contrast materials.

Contrast induced nephropathy usually occurs within 24-48 hours of the x-ray procedure. The kidneys usually recover 7-10 days later but in some cases the damage to the kidneys may be longer lasting.

How does N-Acetylcysteine help to prevent contrast induced nephropathy?
N-Acetylcysteine is an antioxidant. It is thought that an antioxidant may prevent contrast induced nephropathy by neutralizing substances called free radicals which may be harmful to the kidneys. N-Acetylcysteine is an unlicensed medicine.

What is an unlicensed medicine?
The makers of medicines must ask the government for a Product Licence if they want to sell their medicine in the UK. They show the government’s Medicines Regulatory Agency that the medicine works for the illness to be treated and that it does not have too many side effects.

How are medicines tested?
Medicines are tested in clinical trials which are carefully controlled tests to ensure medicines work and are safe.

Why don’t all medicines have a licence?
A common reason is that it is not cost effective for the makers to test the medicine for the particular illness.

Is it safe for me to take NAC if it is not licensed?
Yes. We believe that it is the best way of preventing CIN and that the drug is relatively safe (see section on side-effects)

How is N-Acetylcysteine given?
N-Acetylcysteine is available as a tablet. The usual dose for preventing contrast induced nephropathy is one 600mg tablet in the morning and evening on the day before and on the day of the x-ray. N-Acetylcysteine is also available as an injection. The injection can be given by mouth if the tablet is not available.

Is there any reason why I should not take N-Acetylcysteine?
You should not take N-Acetylcysteine if you have an allergy to N-Acetylcysteine. The tablets of N-Acetylcysteine also contain Microcrystalline cellulose, Lactose, Magnesium stearate, Maize starch, Sodium cyclamate and Saccharin. You should not take the tablets if you are allergic to any of these ingredients.
What are the side effects of N-Acetylcysteine?

Side effects of N-Acetylcysteine are rare and most people do not get any side effects at all.

- Occasional side effects (less than 1 in 100 people)
  - Headache
  - Tinnitus (ringing in the ears)
  - Stomatitis (mouth ulcers)

- Rare side effects (less than 1 in 1000 people)
  - Diarrhoea
  - Vomiting
  - Heartburn
  - Nausea
  - Possible increased bleeding

- Very rare side effects (less than 1 in 10000 people)
  - Allergic type reactions

Is there anything else that can be used to prevent contrast induced nephropathy?

This will depend on how well your kidneys are functioning. Your doctors may suggest you take sodium bicarbonate capsules. They will make sure you are well hydrated before the x-ray procedure either by asking you to drink lots of fluids or by giving you fluids via a drip.

You will also be asked to stop taking drugs which may sometimes harm your kidneys. These include anti-inflammatory drugs (NSAIDS), and ACE inhibitors or Angiotensin receptor blockers. These should be stopped 48 hours before the x-ray procedure.

If you are taking Metformin (an anti-diabetes medicine) this should be stopped 48 hours before the x-ray procedure.

If your kidneys are ok 48 hours after the x-ray procedure these medicines will be restarted.

Will N-Acetylcysteine definitely prevent harm to my kidneys from the x-ray contrast material?

There is still a risk of harm to the kidneys from the x-ray contrast material but the risk will be reduced by use of a combination of N-Acetylcysteine, sodium bicarbonate and extra hydration tailored to suit your requirements.

Further Information

If you have any particular questions on taking this medicine you should speak to your doctor to ensure you fully understand the reasons why we recommend it.

The following website provides comprehensive health information as provided by GPs and Nurses during consultations.

www.patient.co.uk

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