

Prostaglandins are involved in the regulation of renal blood flow, glomerular filtration rate (GFR) the release of the hormone renin, reabsorption of water and excretion of sodium and potassium.

Therefore in blocking prostaglandin function, NSAIDs are inevitably going to affect kidney function. High risk patients include the elderly and those who have pre-existing kidney problems, and also patients with heart disease, liver disease or diabetes.

Renal problems can occur with short-term use of NSAIDs but are more of a concern with long-term use. A range of problems can occur, including end-stage renal failure with chronic high dose NSAID use.

The most common renal problem is sodium retention which also causes water retention and thus oedema. This results in weight gain, swelling of the limbs and abdominal bloating and the patient may notice reduced urine output and shortness of breath.

This problem is of particular concern in patients who have pre-existing heart failure as it will exacerbate the condition.

NSAIDs may also cause hyperkalaemia (high potassium in the blood) due to inhibition of the hormone aldosterone.

This effect will be greater in patients who suffer from diabetes, heart failure or multiple myeloma.

In addition, if the patient is taking potassium sparing diuretics (a type of water tablets) to treat fluid retention or heart failure, or is taking drugs like captopril (an ACE inhibitor) or enalapril (Innovace) then the hyperkalaemia may be particularly marked.

If you develop swelling of the ankles, feet or lower legs or an unexplained weight gain and a decreased urine output, you should seek medical attention immediately.

Nephrotic syndrome with interstitial fibrosis is another condition caused by NSAIDs. Nephrotic syndrome involves loss of protein into the urine.

Fenoprofen is associated with this problem. Papillary necrosis may occur with aspirin/acetaminophen (paracetamol) combination, with phenacetin or in massive NSAID overdose. It is irreversible.

Acute renal failure may be asymptomatic (no symptoms) or present as:

- [decreased urine output](#) (There may be none.)
- excessive urination at night
- ankle/feet/leg swelling
- decrease in sensation in hands and feet
- changes in mental status/mood: agitation, difficulty concentrating, hallucinations
- drowsiness>>coma
- seizures
- hand tremor
- excessive diffuse itching
- nausea/vomiting
- flank pain

High blood pressure due to renal failure may be detected at routine medical checks or may present as persistent headaches.

If you experience any of these symptoms, you must seek urgent medical attention.

