



Awareness of long-term nitrofurantoin adverse effects

Overview of: Speirs TP, Tuffin N, Mundy-Baird F, *et al.* Long-term nitrofurantoin: an analysis of complication awareness, monitoring, and pulmonary injury cases. *BJGP Open*. 2021;5:BJGPO.2021.0083.

Key learning points

- ▶ Long-term use of nitrofurantoin can cause liver and lung toxicity and treatment monitoring is advised.
- ▶ A study assessed how nitrofurantoin was prescribed and monitored in primary and secondary care.
- ▶ There was low level of awareness of the potential for lung and liver injury with nitrofurantoin with fewer than 10% of prescribers routinely carrying out monitoring.

A study of long-term nitrofurantoin prescribing practices found that many prescribers did not routinely monitor for liver or pulmonary adverse events.¹

Overview

This study evaluated clinicians' awareness of the long-term complications of nitrofurantoin and their approach to monitoring for nitrofurantoin's adverse effects.¹ A questionnaire assessing prescribing and monitoring practices and awareness of potential complications with nitrofurantoin, including use of guidelines was sent to 675 general practitioners (GPs) and 130 urologists. In addition, data were requested from 78 GP practices on the monitoring arrangements for patients taking long-term (>6 months) nitrofurantoin. Responses were received from 242 GPs (36%) and 41 urologists (32%), 125 of whom prescribed long-term nitrofurantoin. Most nitrofurantoin prescriptions (66%) were for recurrent urinary tract infections (UTIs), and in more than half of these cases antibiotic choice was based on culture results (53%). Prescribers used local clinical commissioning group guidelines for treatment recommendations (47%), National Institute for Health and Care Excellence (NICE) guidelines (38%) and local hospital guidelines (10%), with 11% not using guidelines. A third of respondents said guidelines were 'not at all sufficient/clear'.

Many prescribers were unaware of the potential for hepatotoxicity (42%) or lung toxicity (28%) and more than half (53%) did not measure baseline lung or liver function.¹ The most common baseline test was liver function (33%) and baseline respiratory symptoms were recorded by 21%. Only 7% of prescribers said they 'always' monitored lung symptoms, while 10% 'always' monitored liver function. The most common practice was to 'never' monitor liver (41%)

or lung (53%) function. When prescribers did monitor patients, it was usually performed every 12 months (32%). The questionnaire also highlighted uncertainty between GPs and urologists over who was responsible for monitoring for adverse events.

The analysis of monitoring practices found that baseline monitoring was absent in 74% of the 265 patients who received long-term nitrofurantoin (54% aged >60 years; 82% women) within the previous 2 years.¹ Baseline monitoring of liver function occurred in 12%, baseline monitoring of lung function occurred in 10% and baseline monitoring of both liver and lung functions occurred in 5%. In a subset of patients prescribed nitrofurantoin for 6–24 months, many received no monitoring beyond 6 months (45%) or had only liver function tests (20%) or lung tests (14%). Just 21% of these patients received both liver and lung function tests after 6 months of treatment. (No funding for the study was declared).

Context

Nitrofurantoin is an option for management of recurrent UTIs and is licensed for long-term use.^{2–4} NICE recommends reassessing the need for antibiotic prophylaxis for recurrent UTIs at least every 6 months.³ Chronic lung reactions (including pulmonary fibrosis and diffuse interstitial pneumonitis) to nitrofurantoin can develop insidiously and hepatitis can also occur with long-term use.⁴ The summary of product characteristics for nitrofurantoin advises close monitoring for pulmonary symptoms in patients receiving long-term therapy, especially in older patients.⁴ It also advises that patients should be monitored closely for signs of hepatitis, particularly with long-term use.⁴ For patients on long-term nitrofurantoin therapy, the British National Formulary recommends monitoring liver function and checking for pulmonary symptoms, especially in the elderly, and to

discontinue if lung function deteriorates.⁵ The Medical Protection Society has dealt with reports relating to inadequate monitoring of long-term nitrofurantoin and recommends that prescribers should perform liver function tests and check for respiratory symptoms every 6 months.⁶ When patients are first prescribed nitrofurantoin they should be advised to contact the prescriber urgently if they develop breathing problems.

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