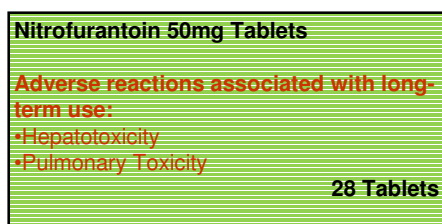


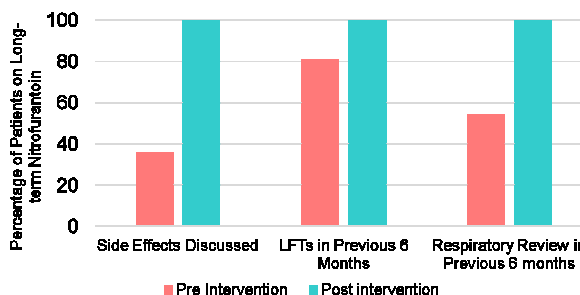
The Unidentified Risks Associated with Prescribing Long-term Nitrofurantoin in General Practice

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Serious side effects associated with long-term nitrofurantoin use which should be discussed with patients before prescribing



GMC guidance on good prescribing advises that when starting any medication prescribers should discuss all common and serious side effects with patients (1). Prior to commencing long-term nitrofurantoin prophylaxis there should be a discussion with the patient of the risks - the risk of antibiotic resistance, the possible adverse effects (common and serious), and the monitoring required (liver function and signs of pulmonary adverse effects). Our study points to some deficiencies in following this advice. It also highlights that more formal monitoring and guidance would help prevent patients developing these serious complications and demonstrates the role primary care network (PCN) clinical pharmacists can have on improving patient safety.

Background

Long-term prescribing of nitrofurantoin for urinary tract infection prophylaxis can result in pulmonary and hepatic toxicity (2). Current guidelines lack clarity on frequency of monitoring required for detection of these side effects (3). There is a potential risk to patient safety which has been demonstrated by known medico-legal implications, resulting in the UK Medical Protection Society identifying negligence in nitrofurantoin monitoring as a significant cause of litigation (4). To date no defendants have been successful in the defence of any case, with claims ranging from £40,000 to £250,000 depending on severity. Recent analysis of long-term nitrofurantoin prescribing in primary care highlighted a clear shortfall in awareness and monitoring amongst clinicians (3).

Aims

- 1) To review all patients in the PCN on nitrofurantoin for longer than a two week course to assess them for pulmonary or hepatic toxicity.
- 2) To share and discuss the risks associated with long term treatment with these patients, assess their ongoing need for treatment and carry out any outstanding monitoring

Methods

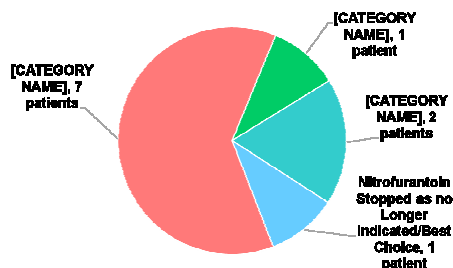
We identified 11 patients who had received a prescription for more than 2 weeks of nitrofurantoin. These patients received a consultation from a PCN clinical pharmacist or GP to assess them for signs of pulmonary toxicity and have liver function tests (LFTs) done. All patients were also reviewed to identify if prophylactic antibiotics were still indicated.

References

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2. British National Formulary (online). Nitrofurantoin. <http://www.bnf.nice.org.uk/nitrofurantoin>. [Accessed 10/6/22]
3. Spiers T. et al. Long-term nitrofurantoin: an analysis of complication awareness, monitoring, and pulmonary injury cases. *BJGP Open* 2021; 5 (6)
4. Medical Protection Society. Complications of Nitrofurantoin, 2017 <https://www.medicalprotection.org/uk/articles/complications-of-nitrofurantoin> [Accessed 10/6/22]

Results

Prescribing Decision Post Review



Conclusion

Over a third of patients had their nitrofurantoin stopped either due to adverse effects or it no longer being indicated, highlighting the importance of regular review. This review is now repeated every six months by the PCN clinical pharmacist to ensure nitrofurantoin continues to be safely prescribed throughout the PCN. This safety check has been made part of the clinical pharmacy team's regular workload, with the aim making medication safety monitoring consistent and removing any variation between practices across the PCN.

Implications on Future Practice

This project highlights the positive impact PCN clinical pharmacists have on improving safe prescribing and ensuring appropriate drug monitoring. It will be used as a foundation to build pharmacist-led prescribing reviews into everyday practice in the PCN, with the aim of incorporating high risk drugs and medications with rare serious side effects into these reviews.