Nystatin prophylaxis and treatment in severely immunodepressed patients

NICE has developed the Cochrane Quality and Productivity topics to help the NHS identify practices that could be significantly reduced or stopped completely, releasing cash and/or resources without negatively affecting the quality of NHS care. Each topic has been derived from a Cochrane systematic review that has concluded that the evidence shows that the practice is harmful or ineffective and should not be used, or that there is insufficient evidence to support widespread use of the practice.

Unless otherwise stated, the information is taken with permission from the Cochrane systematic review.

NICE summary of Cochrane review conclusions

This review suggests that although nystatin is effective prophylaxis and treatment for oral candidiasis in immunocompetent individuals, the effect of nystatin for prophylaxis or treatment of oral candidiasis in immunodepressed individuals is no better than placebo and inferior to fluconazole. Nystatin should not be used for prophylaxis or treatment of oral candidiasis in immunodepressed individuals.

The 'Implications for practice' section of the Cochrane review stated:

'The effect of nystatin given orally to immunodepressed patients was no better than that of placebo, whereas it was inferior to the effect of fluconazole. Nystatin cannot be recommended for prophylaxis or treatment of candida infections in immunodepressed patients.'

Details of Cochrane review

Cochrane review title

Nystatin prophylaxis and treatment in severely immunodepressed patients (Review)

Citation

Gøtzsche PC, Johansen HK. Nystatin prophylaxis and treatment in severely immunodepressed patients. *Cochrane Database of Systematic Reviews* 2014, Issue 9. Art. No.: CD002033. DOI: 10.1002/14651858.CD002033.pub2.

When the review content was assessed as up to date

7 July 2014

Quality and productivity category

Right care

Relevant codes	OPCS	ICD10	HRG
	N/A	Y560	N/A

Programme budget:

Infectious Diseases

Evidence

Relevance to the NHS

Patients with severe immunodeficiency, for example undergoing antileukaemic chemotherapy, bone marrow transplant or with AIDS are at risk of fungal infections. These infections can be life-threatening, especially when they spread throughout the body. Nystatin is sometimes used prophylactically or as treatment in these patients. The objective of this Cochrane was to study whether nystatin decreases morbidity and mortality when given prophylactically or therapeutically to patients with severe immunodeficiency.

All randomised clinical trials, irrespective of language, which compared nystatin with placebo, an untreated control group, fluconazole or amphotericin B were eligible for inclusion. Participants of the trials included were patients with severe immunodeficiency predisposing to fungal infection. The participants were children in 3 of the trials. Fourteen trials were included (1579 patients), where the drugs were given prophylactically in 12 trials and as treatment in 2. Nystatin was compared with placebo or no treatment in 3 trials, with fluconazole in 10, and amphotericin B in 1.

The effect of nystatin was similar to that of placebo on fungal colonisation with the total number of colonisations being 53 out of 164 patients on nystatin and 57 out of 147 on placebo (relative risk (RR) 0.85, 95% confidence interval (CI) 0.65 to 1.13). There was no statistically significant difference between fluconazole and nystatin on mortality (RR 0.75, 95% CI 0.54 to 1.03) whereas fluconazole was more effective in preventing invasive fungal infection (RR 0.40, 95% CI 0.17 to 0.93) and colonisation (RR 0.50, 95% CI 0.36 to 0.68). The reporting of harms was variable from trial to trial with some trials reporting no data.

The effect of nystatin given to patients with severe immunodeficiency was no better than placebo, whereas it was inferior to the effect of fluconazole. Nystatin is not recommended for prophylaxis or treatment of candida infections in this group of patients.

Relevant NICE guidance and products

No relevant NICE guidance was available at the time of publication (July 2015)

Other accredited guidance and products

No other accredited guidance was available at the time of publication (July 2015)

Potential productivity savings

Estimate of current NHS use

- We do not know how many people on chemotherapy for cancer, receiving a transplant or with AIDS are at risk of fungal infections and likely to receive antifungal prophylaxis.
- Approximately 719,000 nystatin prescription items costing £8.8 million were dispensed in the community in England in 2013 (Health and Social Care Information Centre, 2014). There is no data showing how many of these were for prophylaxis and treatment in people on chemotherapy for cancer, receiving a transplant or with AIDS are at risk of fungal infections.

Level of productivity savings anticipated

- Treatment costs will vary depending on the severity of the infection.
- The cost of nystatin is £2.42 for a 30ml oral suspension. Based on a dosage of 1 ml of the suspension dropped into the mouth four times daily, the cost per day is £0.33.
- The cost of fluconazole is £6.86 for 200mg, 7 tablet packet. Based on a dosage of 1 tablet per day, the cost per day is £0.98 (NGS electronic drug tariff, 2014).
- No savings are expected if nystatin is discontinued and people switch to other options such as fluconazole. There is potential for increse in prescribing cost if switching to using fluconazole.

Type of saving

- No cash saving to commissioners but productivity saving to NHS Trusts.

Any costs needed to achieve the savings

- Change can be achieved without any additional costs.

Other information

N/A

Potential impact on quality of NHS care

Impact on clinical quality

Clinical quality will be improved by reducing the use of nystatin.

Impact on patient safety

Not anticipated to have any effect on patient safety.

Impact on patient and carer experience

Not anticipated to have any effect on the patient or carer experience.

Likely ease of implementation

Time taken to implement

Can be achieved quickly: 0–3 months.

Healthcare sectors affected

Affects a number of departments or teams within the NHS.

Stakeholder support

Likely to achieve good buy-in from key influencers.

References

Health and Social Care Information Centre(2014) Prescribing and Primary Care Services: Prescription Cost Analysis: England 2013

NGS electronic drug tariff (2014)