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Putting the FUN in Fungi: Toenail onychomycosis treatments



Clinical Question: How effective are treatments for mild-moderate adult toenail onychomycosis?



Bottom Line: Up to 45-60% of patients on oral treatments (terbinafine best), 6-23% on topicals (efinaconazole best), and <10% on placebo will be “cured” after ~1 year. Topicals should be reserved for cases with minimal (<40%) nail involvement.

Evidence:

- Oral agents:
 - Meta-analysis of 43 randomized, controlled trials (RCTs),¹ 9730 patients, example ~60-70% nail involvement², 12-16 weeks treatment³. Rates of clinical cure after 4 months-2 years follow-up:¹
 - Terbinafine versus placebo, 8 RCTs: 48% terbinafine, 6% placebo, number needed to treat (NNT)=3.
 - “Azoles” (mostly itraconazole) versus placebo, 9 RCTs: 31% azole, 1.4% placebo, NNT=4.
 - Terbinafine versus “azoles” (mostly itraconazole), 15 RCTs: 58% terbinafine, 46% azole; NNT=9.
- Topical ciclopirox:
 - 3 RCTs, 928 patients, 48 weeks of treatment, ~40% nail involvement.^{4,5}
 - “Cure” (mycological and clinical cure): 6-8% ciclopirox, 0-1% placebo (NNT=15-23).
- Topical efinaconazole:
 - 2 identical RCTs, 1655 patients. 48 weeks of treatment, assessed at 52 weeks, ~40% nail involvement:⁶
 - “Complete cure” (mycological cure and 100% healthy nail): ~16%, ~4% placebo (NNT~9).
 - RCT, 135 patients. After 36 weeks of treatment and 4 weeks follow-up, ~40% nail involvement:⁷
 - “Complete cure” (mycological cure and 100% healthy nail): ~22%, 9% placebo (NNT=8).

Other systematic reviews only reported mycological cure.⁸⁻¹⁰

Context:

- While British guidelines suggest laboratory confirmation before treatment;¹¹ only 50% of Canadian guideline authors recommend this approach.¹²
 - Culture results take several weeks and have ~35% false negative rate.¹³
 - Fungal stains alone (without culture/histology) have low sensitivity.¹³
- Canadian guidelines suggest topical efinaconazole if <20% nail involvement, efinaconazole +/- oral terbinafine for 20-60% involvement (or for >3 nails), oral terbinafine for >60% involvement.¹²
- Risk of terbinafine-induced liver injury: ~1 in 50,000-120,000 prescriptions.¹⁴
- Medication Costs:¹⁵
 - Oral (12 weeks):
 - Terbinafine: ~\$90
 - Itraconazole: ~\$850
 - Topical (48 weeks): 2 bottles per treatment.
 - Ciclopirox: ~\$150
 - Efinaconazole: ~\$250
- Terbinafine treatment without confirmatory testing is likely most cost-effective approach.¹⁶
- Although not always statistically different, some RCTs found clinically relevant improvements with 4-6-month oral treatment regimens compared to 3 months.^{3,17}

Authors:

Adrienne Lindblad BSP ACPR PharmD, Stacy Jardine BScPharm, Michael Kolber MD CCFP MSc

Disclosures:

Authors do not have any conflicts of interest to declare.

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