

# **New treatment options in onychomycosis**

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# Fungi involved in Onychomycosis (Summerbell, et al, 1989)

- *Trichophyton rubrum* - 71 %
- *T. mentagrophytes* - 20 %
- *Candida albicans* - 5.6 %
- *Scopulariopsis brevicaulis* - 1.7 %
- Other moulds - 1.7 %

# Onychomycosis

- The most prevalent disease of the nails
- 50 % of all nail disturbances
- 10 - 30 % of all dermatophytoses
- 3 to 30 % of the population are affected
- Increases steadily with the age of the individual

# Predisposing factors in onychomycosis

- The age of the individual
- Hereditary factors - dominant inheritance
- Diabetes mellitus
- Immunosuppression
- Vascular disease
- Occlusive footwear
- Psoriasis

# Age distribution of Onychomycosis (Gupta, et al, 1997)

- 0 - 10 years: 2.3 %
- 20 - 30 years: 6.9 %
- 40 - 50 years: 24.1 %
- 60 - 70 years: 40.0 %
- > 80 years: 61.5 %

# Prevalence of onychomycosis

- Range 3 to 30 % depending on methodology and predisposing factors
- Questionnaire: 2.7 % (Roberts, 1992)
- Clin + Mycology: 9.1 % (Gupta et al., 1997)
- Clin + Mycology: 36 - 46 % (Haneke and Roseeuw, 1999)
- Clin + Mycology: 8 % (Gupta, et al., 2000)

# Diagnosis of onychomycosis

- A correct sampling technique is very important
- Scrape the debris under the nail with a small (2 mm) curette at the border between normal and diseased nail.
- Combine the material with nails clippings

# Diagnosis of onychomycosis

- Direct microscopy: KOH, Calcoflour white
- Culture





# Differential diagnosis

- Psoriasis
- Lichen planus
- Nail dystrophia

# Onychomycosis

## Major Clinical Presentations

- **Distal subungual types**
  - Distal lateral subungual
  - Endonyx
- **Proximal subungual**
- **Superficial types**
- **Total dystrophic types**
  - Primary
  - Secondary



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# Treatment of Onychomycosis

- Oral treatment
- Topical treatment
- Combined oral and topical treatment

# L.I.O.N. study

Evans EGV, Sigurgeirsson B et al.

BMJ 1999;518:1031-1035

# Terbinafine versus itraconazole in onychomycosis of toenails

- Terbinafine 250 mg daily for 12 weeks (T 12) and 16 weeks (T 16)
- Itraconazole 400 mg daily, one week per month for 3 months (I 3) and 4 months (I 4)
- Design: Double-blind, parallel group

# Mycological Results (72 weeks)

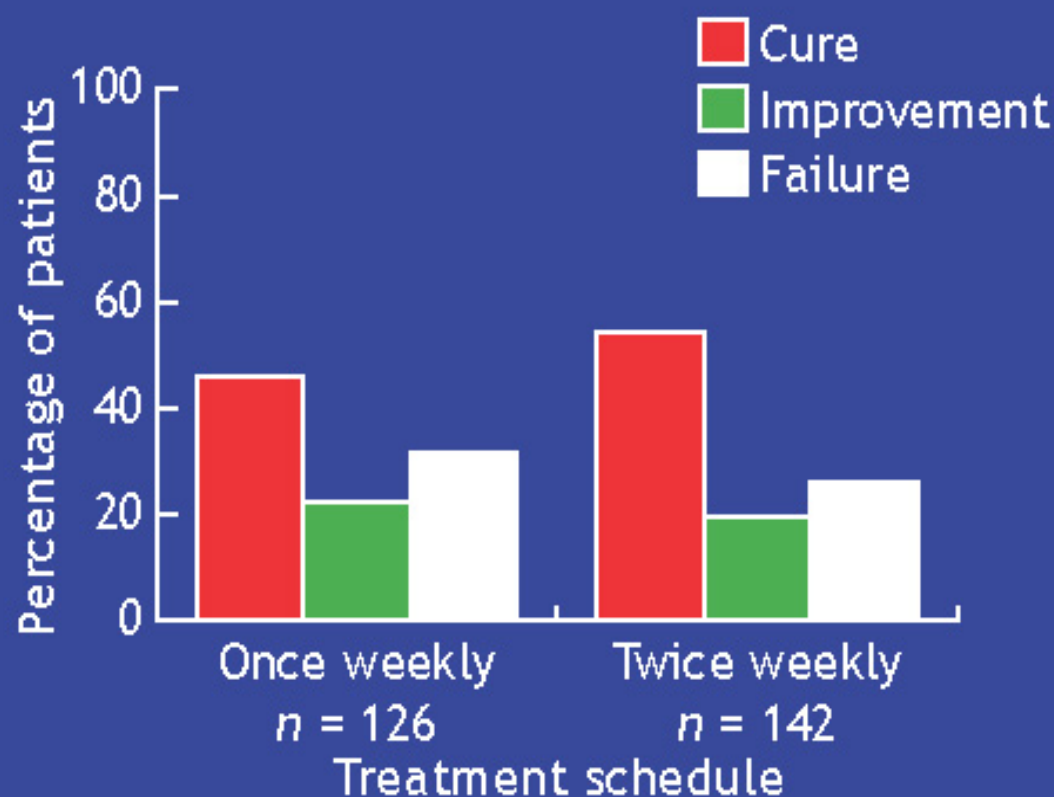
- 76 % (81/107) in T12 group
- 81 % (80/99) in T16 group
- 38 % (41/107) in I 3 group
- 49 % (53/108) in I 4 group

# Complete cure (72 weeks)

- 46 % (49/107) in T 12 group
- 55 % (54/98) in T 16 group
- 23 % (29/102) in I 3 group
- 26 % (28/108) in I 4 group

# Loceryl<sup>®</sup> Nail Lacquer

Once-Weekly 5% Nail Lacquer Results  
in Good Mycological/Clinical Efficacy  
at Study End



Reinel, 1992

# Loceryl® Nail Lacquer

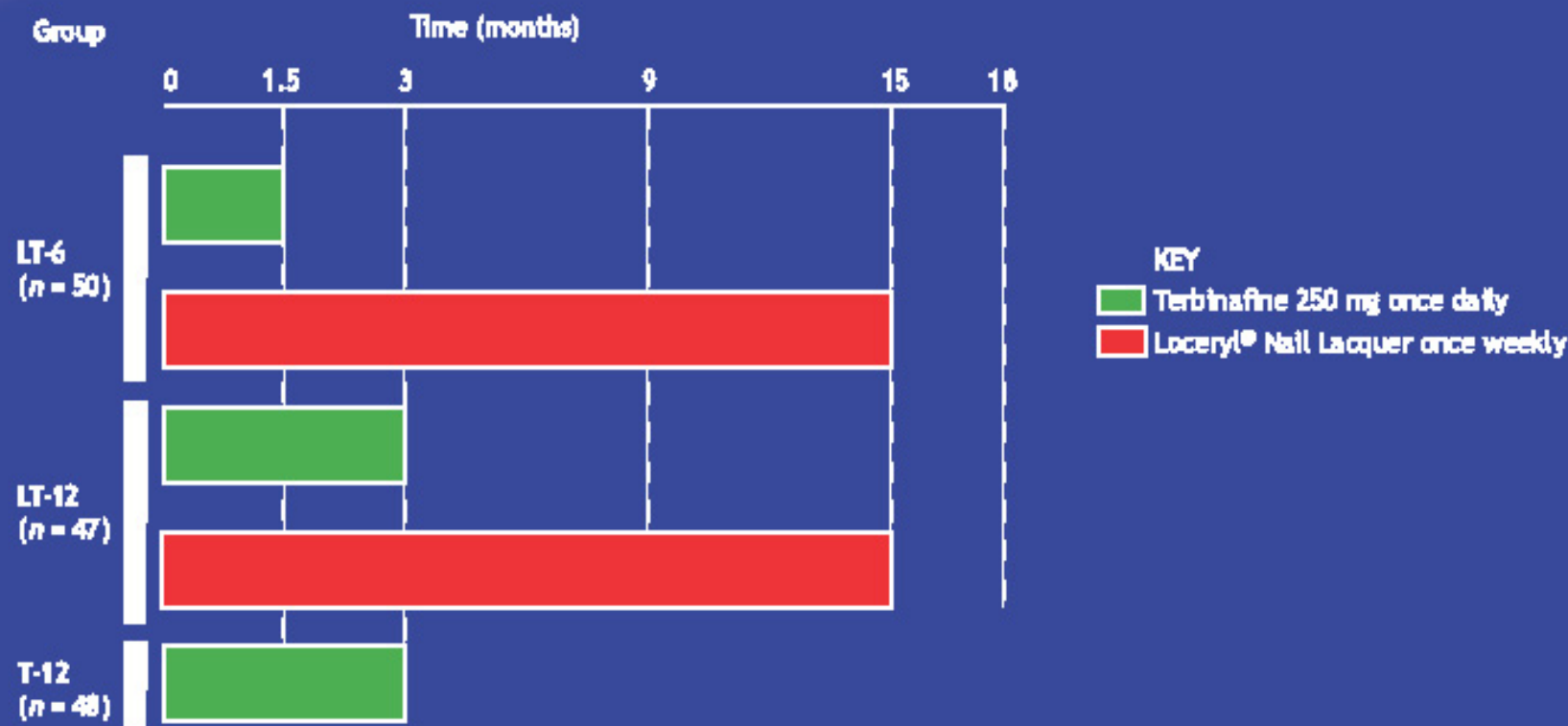
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## Do We Need Combination Therapy for Onychomycosis with Matrix Involvement?

- 25–50% of patients given oral monotherapy fail treatment or relapse
- Complementary routes of drug penetration may be helpful
  - Topical drugs penetrate via nail plate
  - Oral drugs penetrate the nail bed
- Drug combination can result in drug synergy (increased efficacy at lower drug concentrations)
- Drug combination may be of use in the treatment of onychomycosis with matrix involvement (severe cases)

# Loceryl® Nail Lacquer

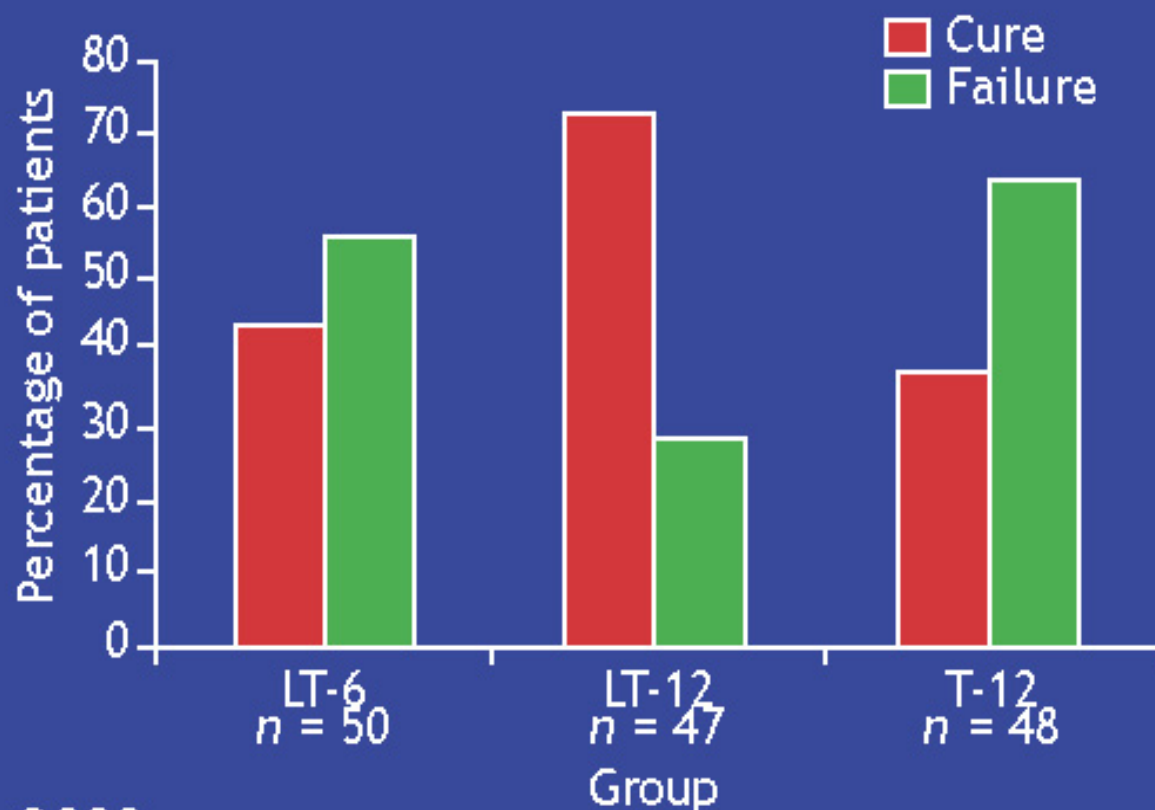
Combination with Oral Terbinafine for Onychomycosis with Matrix Involvement - Study Design





# Loceryl<sup>®</sup> Nail Lacquer

Combination with Oral Terbinafine for Onychomycosis with Matrix Involvement - Mycological/Clinical Efficacy at 18 Months



# Loceryl® Nail Lacquer

Combination with Oral Terbinafine for Onychomycosis  
with Matrix Involvement - Case 1



A: baseline



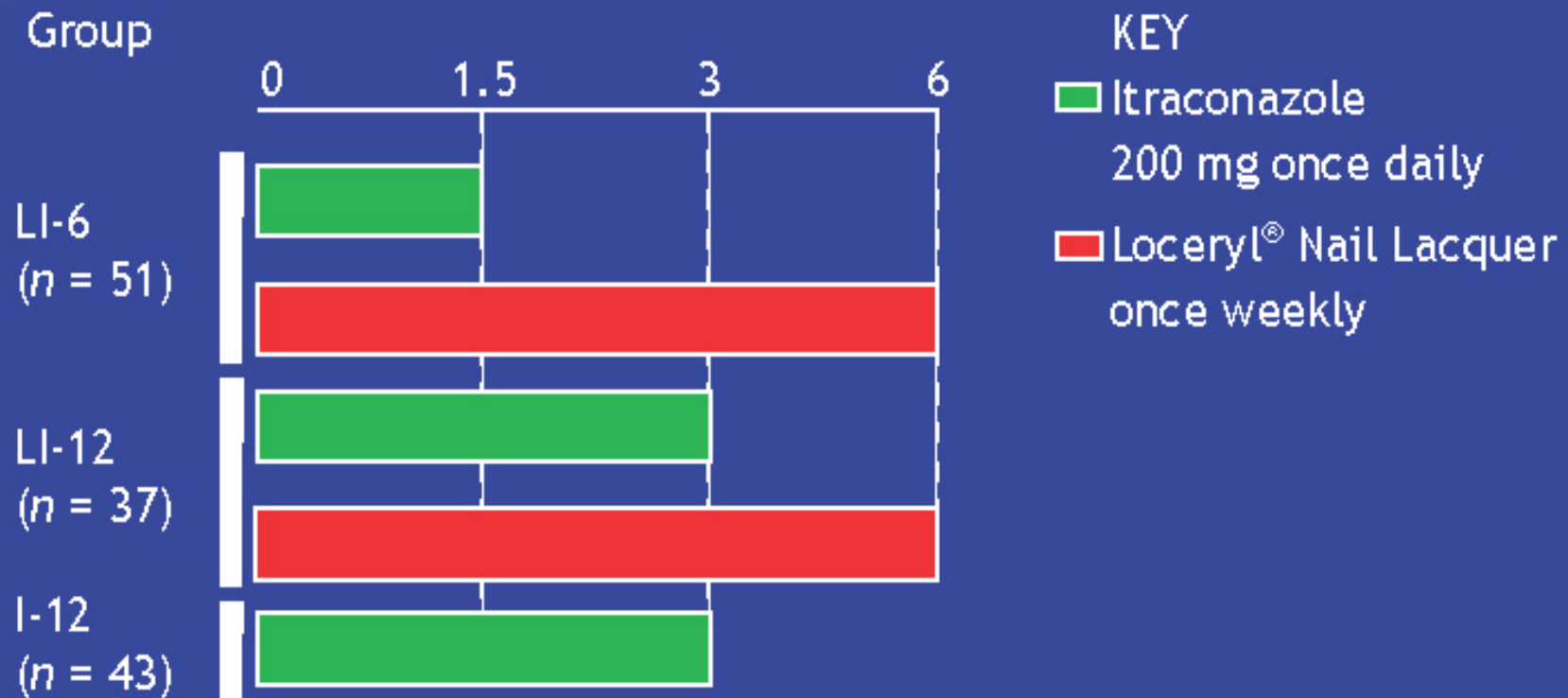
B: 3 months



C: 12 months

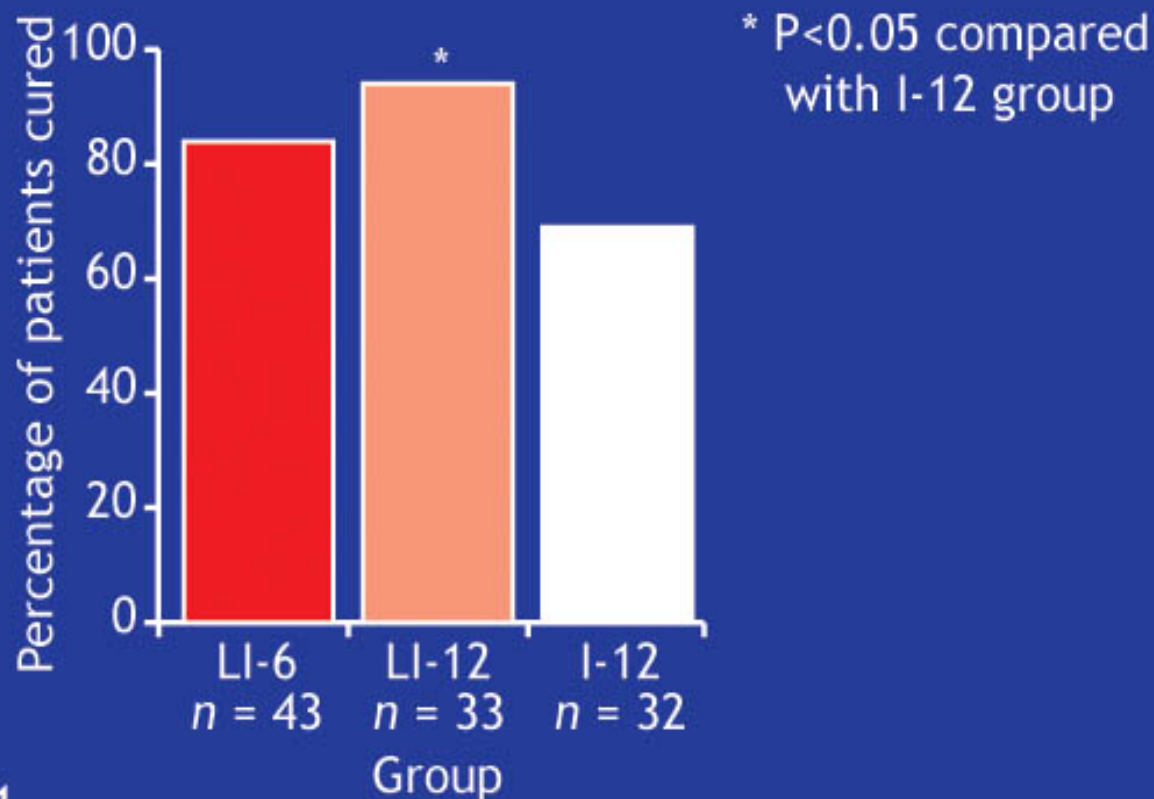
# Loceryl® Nail Lacquer

## Combination with Oral Itraconazole for Onychomycosis with Matrix Involvement - Study Design



# Loceryl<sup>®</sup> Nail Lacquer

Combination with Oral Itraconazole for Onychomycosis with Matrix Involvement - Mycological/Clinical Efficacy after 6 Months



# Loceryl® Nail Lacquer

Combination with Oral Itraconazole for Onychomycosis  
with Matrix Involvement - Case 1



A: baseline



B: 3 months



C: 6 months

# Specific Problems in the Treatment of Onychomycosis

- Mycological cure rates (70 %) versus clinical cure rates (45-60%)
- Failures!
- How do clinical trial results translate into long term results in every day practice
- Recurrences

# Drug resistance

- Rare with dermatophytes
- Rare with common *Candida* infections
- Vary with different *Candida* species e. g. *C. tropicalis*, *C. krusei*, *C. glabrata*

# TOE-Consensus on treatment strategies

- Taskforce on Onychomycosis Education. JEADV 2005;19:Suppl 1
- Three main treatment strategies are recognized: oral, topical and combination



# TOE-Consensus on treatment strategies

- Topical mono therapy is recommended in absence of matrix involvement
- Oral mono therapy or combination therapy is indicated when the matrix area is involved
- Combination therapy appears to be an effective treatment approach

# TOE-Consensus on treatment strategies

- Chemical or mechanical treatment is indicated when drug transport is suboptimal with systemic drugs
- Need for decision-making tools; e. g. a CD-ROM or booklet presenting each type of onychomycosis and criteria to be considered before selecting treatment regimen.

# Conclusion

- Onychomycosis is a common disease affecting 3 to 30 % of the population
- Predisposing factors are important
- A correct sampling technique is mandatory for a correct diagnosis
- Complete cure with oral treatment is 40 - 50 %
- Combination therapy with oral and topical therapy will increase cure rates