



# **TINEA CAPITIS KOD DECE – EPIDEMIOLOŠKE I KLINIČKE KARAKTERISTIKE**

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**3. Simpozijum Dijagnoza i terapija gljivičnih oboljenja, 1-2. mart 2012.**

# Istorijat

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- Prva studija o superficijalnim infekcijama pre više od 150 godina - Remak opisao prirodu micelujuma favusa
- 1841. Gruby izolovao favus u kulturi i eksperimentalno izazvao oboljenje u zdravoj koži
- 1910. Sabouraud objavio klasifikaciju dermatofita - 4 roda na osnovu mikroskopskih i kliničkih karakteristika
- 1934. Emmons modifikovao klasifikaciju dermatofita u danas poznata 3 roda: *Epidermophyton*, *Microsporum*, *Trichophyton*

# Dermatofitoze

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Gljivična oboljenja izazvana dermatofitima - dermatofitoze, tinee, ringworm (zbog anularne prezentacije)

**Dermatofiti** - jedinstvena grupa keratofilnih gljivica u koje se ubrajaju 3 roda:

- *Trichophyton*
- *Microsporum*
- *Epidermophyton*

Klasifikacija prema primarnom domaćinu:

- antropofilni
- zoofilni
- geofilni specijesi

- Hrane se keratinom
- Sposobne su da inficiraju keratinizovana tkiva (stratum corneum kože, nokat i dlaku)
- Specijesi koji ne izazivaju oboljenja kože, kose i noktiju ne pripadaju dermatofitima
- Pojedini su široko rasprostranjeni, dok su drugi vezani za određene kontinente ili regione

- Obično kod dece u prepubertetskom periodu, najčešće između 2-10. godine (3-7. godine)
- Moguća je infekcija i nakon puberteta (adolescenti i odrasli), ali retko
- Uzrok povećanja rezistencije na dermatofite posle puberteta je veći sadržaj fungistatskih masnih kiselina u sebumu osoba u postpubertetskom periodu
- Dečaci 5 puta češće oboljevaju
- Tačna incidencija nije poznata

- Najčešće izolovani specijesi su *T. tonsurans* i *M. canis*
- Uzročnik varira geografski
- U severnoj Americi (više od 90%) najčešći izazivač je *T. tonsurans* (zamenio je *M. audouinii*)
- Kod nas u šezdesetim godinama 20. veka - specijesi trihofitona
- Posle 1970. godine – specijesi mikrosporum

## I studija

- Od 1993. do 2002. na dečijem odeljenju KDV KCS lečeno je 354 dece sa tineom capitis (TC)
- Dečaka 215 (61%)
- Odnos dečaci:devojčice - 1,6:1
- Superficialna TC kod 230 (65%)
- Kerion celsi kod 124 (35%)
- Od 1993. do 1997. predominantni uzročnik *M. canis*
- Od 1998. do 2002. *M. audouinii*
- Th - grizeofulvin

Nikolic M, Stamenovic Z, Gajic-Veljic M, Vukicevic J. Tinea capitis in Belgrade 1998-2002, Serbian journal of Dermatology and Venereology 2009, UDC 616.59-002.828

## KCS, Beograd, 1993-2002

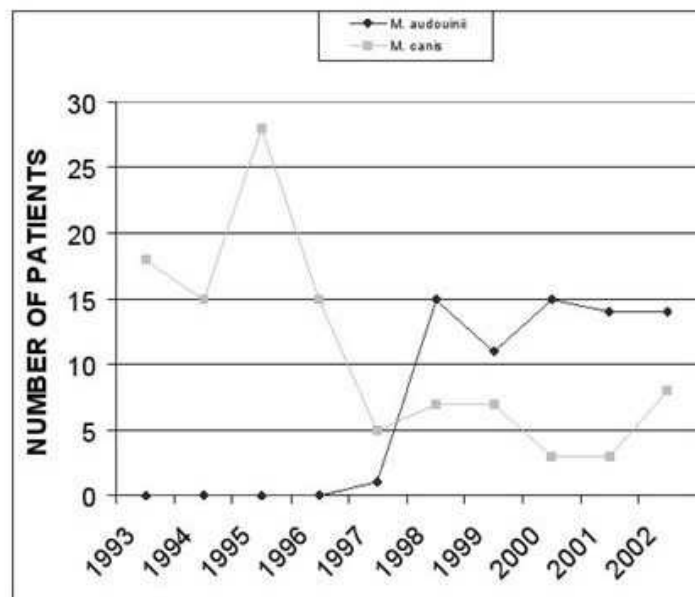


Figure 1. Tinea capitis caused by Microsporum spp.: epidemiology

Table 2. Tinea capitis in Belgrade, clinico-etiological correlations (1998-2002)

Etiologic agent	Clinical variety		Total	%
	Superficial TC	Kerion celsi		
<i>M. audouinii</i>	64	0	64	52.5%
<i>M. canis</i>	26	7	33	27.0%
<i>M. persicolor</i>	1	0	1	0.8%
<i>M. gypseum</i>	0	1	1	0.8%
<i>T. mentagrophytes</i>	6	10	16	13.1%
<i>T. rubrum</i>	3	2	5	4.1%
<i>T. violaceum</i>	1	0	1	0.8%
<i>Trichophyton spp.</i>	1	0	1	0.8%
Total	102	20	122	100.0%



**Table 1.** Tinea capitis in Belgrade, age and sex distribution (1993-2002)

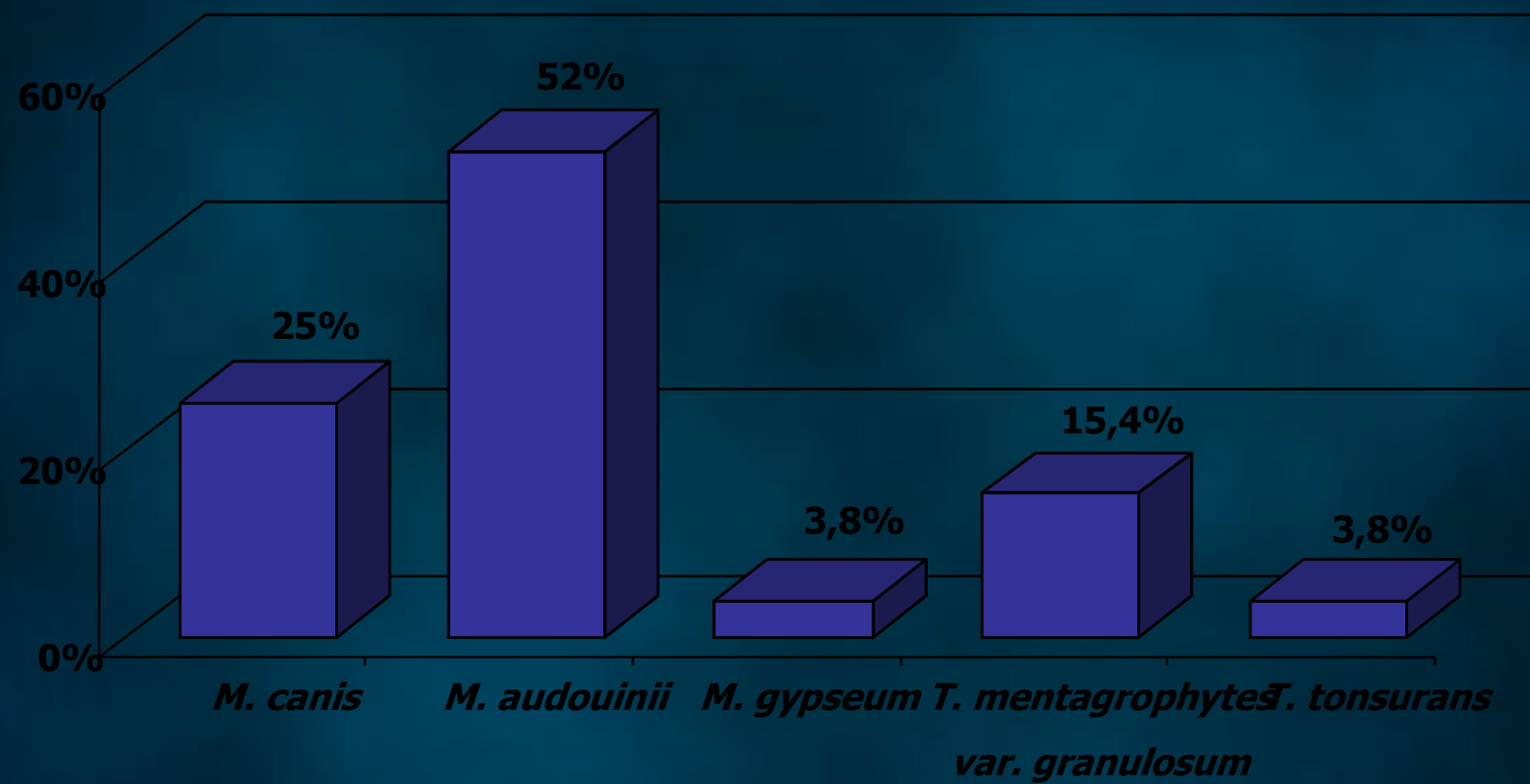
Age (years)	Number of patients			%
	Boys	Girls	Total	
0-3.9	50	32	82	23.2%
4-7.9	96	67	163	46.0%
8-11.9	52	35	87	24.6%
12-15.9	17	5	22	14.4%
Total	215	139	354	100.0%

## II studija

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- Od 2005. do 2010. godine 112 pacijenata sa TC
- Dečaka 73 (66%)
- Devojčica 39 (34%)
- Superficialna TC kod 63 pacijenta (57%)
- Kerion celsi kod 39 pacijenata (43%)
- *M. audouinii* izolovan kod 52%
- *M. canis* kod 25%
- *T. mentagrophytes var. granulare* kod 15% pacijenata
- Th - itrakonazol

KCS, Beograd, 2005-2010.



## Studija 2005-2010.

Godine	Dečaci ( <i>n</i> )	Devojčice ( <i>n</i> )	Ukupno	(%)
0 do < 4	20	13	33	29.5
4 do < 8	39	18	57	50.9
8 do <12	11	8	19	16.9
12 do <16	3	/	3	2.7
Ukupno pacijenata	73	39	112	100.0

- SAD i Velika Britanija – *T. tonsurans*
- Zapadna i južna Azija i Australija - *T. violaceum*

Mohrenschlager M et all. Pediatric tinea capitis: recognition and management. Am J Clin Dermatol 2005;6:209-13

Aly R, Hay RJ, Del Palacio A, Galimberti R. Epidemiology of tinea capitis. Med Mycol 2000;38:183-8

## Centralna Nigerija

- Od 28505 dece – 248 TC
- Dečaka 194 (78,2%), devojčica 54 (21,8%)
- 10-14 godina 42,7%
- 5-9 godina 40,3%
- *T. soudanense* 30,6%
- *M. ferrugineum* 7,7%
- *M. audouinii* 7,7%

Ayanbimpe G, Taghir H, Diya A, Wapwera S. Tinea capitis among primary school children in some parts of central Nigeria. Mycoses 2008;51:336-40

## Dermatofite – Nemačka tokom 20. veka

**Table 1** Evolution of the spectrum of dermatophytes in Germany during the 20th century

Dermatophyte	Karrenberg [1] 1926–1928 <i>n</i> = 212 Hamburg	Götz [2] 1948–1950 <i>n</i> = 168 Hamburg	Blaschke-Hellmessen et al. [3] 1967–1971 <i>n</i> = 38,738 Former GDR	Elsner et al. [4] 1976–1985 <i>n</i> = 8,973 Würzburg	Tietz et al. [5] 1992–1994 <i>n</i> = 969 Berlin
<i>T. rubrum</i>	2 (1)	70 (41.7)	28,630 (73.9)	(73.9)	801 (82.66)
<i>T. mentagrophytes</i>	18 (8.5)	46 (27.4)	7,641 (19.7)	(19)	113 (11.66)
<i>T. verrucosum</i>	17 (8.0)	8 (4.8)	1,442 (3.7)	(1)	–
<i>T. tonsurans</i>	13 (6.1)	3 (1.8)	30 (0.07)	(0.2)	8 (0.83)
<i>T. megninii</i>	4 (1.9)	3 (1.8)	12 (0.003)	(0.03)	–
<i>T. schoenleinii</i>	2 (0.9)	2 (1.2)	–	(0.01)	–
<i>T. violaceum</i>	2 (0.9)	2 (1.2)	–	(0.02)	–
<i>T. quinckeanum</i>	3 (1.4)	1 (0.6)	–	–	–
<i>M. audouinii</i>	53 (25)	23 (13.7)	–	–	–
<i>M. canis</i>	2 (0.9)	–	70 (0.18)	(1.2)	30 (3.1)
<i>E. floccosum</i>	92 (43.4)	10 (5.9)	595 (1.54)	(2.7)	7 (0.7)
Other species	–	–	330 (0.85)	(0.9)	10 (1.03)

Results correspond to the number of positive cultures for each dermatophyte and in parentheses is indicated the frequency (in percentage) among all dermatophytes isolated in the study. *n*, number of isolated dermatophytes; GDR, German Democratic Republic

# Dermatofite – USA i Meksiko

**Table 3** Spectrum of dermatophytes isolated from human in the United States and in Mexico

Dermatophyte	Sinski and Flouras [21] 1979–1981 <i>n</i> = 6,502 USA	Sinski and Kelley [22] 1982–1984 <i>n</i> = 11,635 USA	Sinski and Kelley [23] 1985–1987 <i>n</i> = 14,696 USA	Weitzman et al. [24] 1993–1995 <i>n</i> = 26,815 USA	Welsh et al. [25] 1978–1990 <i>n</i> = 2,394 Mexico
<b>Anthropophilic species</b>					
<i>T. rubrum</i>	3,489 (53.7)	5,445 (46.8)	8,066 (54.8)	11,061 (41.3)	1,081 (45.2)
<i>T. mentagrophytes</i>	557 (8.6)	1,180 (10.1)	939 (6)	2,288 (8.5)	568 (23.7)
<i>T. violaceum</i>	12 (0.18)	8 (0.06)	12 (0.08)	40 (0.2)	8 (0.3)
<i>T. tonsurans</i>	1,811 (27.9)	3,872 (33.3)	4,600 (31.3)	12,038 (44.9)	504 (21.1)
<i>T. schoenleinii</i>	1	–	1	6	–
<i>T. soudanense</i>	–	1	2	7	–
<i>T. concentricum</i>	–	–	–	1	–
<i>M. audouinii</i>	20 (0.3)	14 (0.1)	13 (0.08)	22 (0.1)	–
<i>M. ferrugineum</i>	3	–	1	–	–
<i>E. floccosum</i>	284 (4.4)	408 (3.5)	295 (2)	287 (1.1)	60 (2.5)
<b>Zoophilic species</b>					
<i>T. verrucosum</i>	22 (0.3)	82 (0.7)	33 (0.08)	88 (0.3)	2
<i>M. canis</i>	242 (3.7)	525 (4.5)	623 (4)	884 (3.3)	171 (7.1)
<b>Geophilic species</b>					
<i>M. gypseum</i>	58 (0.9)	83 (0.7)	101 (0.6)	92 (0.4)	–
<i>M. nanum</i>	1	–	6	1	–
<i>T. terrestre</i>	–	14 (0.1)	4	–	–

Results correspond to the number of positive cultures for each dermatophyte and in parentheses is indicated the frequency (in percentage) among all dermatophytes isolated in the study. *n*: number of isolated dermatophytes



# Dermatofite – Evropa tokom 20. veka

Table 2 Evolution of the spectrum of dermatophytes in Europe during the 20th century

Dermatophyte	Buchvald and Simaljaková [7] 1956–1992 <i>n</i> = 23,100 Slovakia	Buchvald and Simaljaková [7] 1956–1965 <i>n</i> = 4,290 Slovakia	Buchvald and Simaljaková [7] 1986–1992 <i>n</i> = 5,281 Slovakia	Kuklová and Kucerová [8] 1987–1998 <i>n</i> = 5,605 Prague Czech Republic	Kaszuba et al. [9] 1987–1995 <i>n</i> = 2,282 Lodz, Poland	Nowicki [10] 1984–1995 <i>n</i> = 1,544 Gdansk, Poland	
Anthrophilic species							
<i>T. rubrum</i>	14,211 (61.5)	1,128 (26.3)	3,953 (74.9)	5,055 (90.2)	682 (29.9)	239 (15.5)	
<i>T. mentagrophytes</i> var. <i>interdigitale</i>	2,540 (11)	420 (9.8)	498 (9.4)	264 (4.7)	269 (11.8)	643 (41.6)	
<i>T. violaceum</i>	145 (0.6)	114 (2.7)	3 (0.06)	–	14 (0.6)	4 (0.2)	
<i>T. tonsurans</i>	48 (0.2)	42 (1)	1 (0.02)	–	159 (7)	66 (4.3)	
<i>T. schoenleinii</i>	21 (0.1)	19 (0.4)	–	–	–	–	
<i>T. megninii</i>	12 (0.05)	12 (0.3)	–	–	–	–	
<i>M. audouinii</i>	35 (0.2)	35 (0.8)	–	–	7 (0.3)	–	
<i>E. floccosum</i>	762 (3.3)	90 (2.1)	205 (3.9)	–	232 (10.2)	147 (9.5)	
Zoophilic species							
<i>T. verrucosum</i>	3,446 (14.9)	1,327 (30.8)	415 (7.9)	1 (0.01)	15 (0.7)	16 (1)	
<i>T. mentagrophytes</i> var. <i>granulosum</i>	1,675 (7.3)	1,082 (25.2)	103 (1.9)	105 (1.9)	490 (21.5)	–	
<i>M. canis</i>	105 (0.4)	–	75 (1.4)	100 (1.8)	238 (10.5)	429 (27.8)	
Other species	100 (0.4)	21 (0.5)	28 (0.5)	2 (0.04)	176 (7.7)	–	
Dermatophyte	Dolenc-Voljč [11] 1995–2002 <i>n</i> = 8,286 Ljubljana, Slovenia	Babić-Erceg et al. [12] 1996–2002 <i>n</i> = 858 Split, Croatia	Devliotou-Panagiotidou et al [13] 1981–1990 <i>n</i> = 6,572 North Greece	Maraki et al. [14] 1992–1996 <i>n</i> = 327 Crete, Greece	Terragni et al. [15] 1970–1989 <i>n</i> = 12,266 Milan, Italy	Mercantini et al. [16] 1985–1993 <i>n</i> = 2,821 Rome, Italy	Lehenkari et al. [17] 1982–1990 <i>n</i> = 1,543 Finland
Anthrophilic species							
<i>T. rubrum</i>	3,044 (36.7)	184 (21.5)	4,122 (62.7)	145 (44.4)	3,725 (30.4)	759 (27)	1,041 (67.5)
<i>T. mentagrophytes</i> var. <i>interdigitale</i>	656 (7.9)	213 (24.8)	553 (8.4)	47 (14.4)	636 (5.2)	299 (10.6)	374 (24.2)
<i>T. violaceum</i>	18 (0.2)	7 (0.8)	60 (0.9)	10 (3.1)	198 (1.6)	18 (0.6)	5 (0.3)
<i>T. tonsurans</i>	19 (0.2)	33 (3.9)	25 (0.4)	–	56 (0.5)	4 (0.2)	–
<i>T. schoenleinii</i>	–	13 (1.5)	5 (0.07)	–	46 (0.4)	–	–
<i>T. megninii</i>	–	13 (1.5)	–	–	8 (0.1)	–	–
<i>M. audouinii</i>	–	18 (2)	–	–	–	–	–
<i>E. floccosum</i>	54 (0.7)	3 (0.4)	708 (10.8)	25 (7.6)	1,043 (8.5)	262 (9.3)	68 (4.4)

Dermatophyte	Dolenc-Voljč [11] 1995–2002 <i>n</i> = 8,286 Ljubljana, Slovenia	Babić-Erceg et al. [12] 1996–2002 <i>n</i> = 858 Split, Croatia	Devliotou-Panagiotidou et al. [13] 1981–1990 <i>n</i> = 6,572 North Greece	Maraki et al. [14] 1992–1996 <i>n</i> = 327 Crete, Greece	Terragni et al. [15] 1970–1989 <i>n</i> = 12,266 Milan, Italy	Mercantini et al. [16] 1985–1993 <i>n</i> = 2,821 Rome, Italy	Lehenkari et al. [17] 1982–1990 <i>n</i> = 1,543 Finland
Zoophilic species							
<i>T. verrucosum</i>	82 (0.9)	34 (4)	67 (1)	6 (1.8)	180 (1.5)	1 (0.04)	47 (3.2)
<i>T. mentagrophytes</i> var. <i>granulosum</i>	414 (4.9)	In line 2	105 (1.6)	11 (3.4)	In line 2	In line 2	In line 2
<i>M. canis</i>	3,881 (46.8)	313 (36.5)	900 (13.7)	82 (25.1)	6,012 (49)	1,414 (50)	2 (0.1)
Geophilic species							
<i>M. gypseum</i>	105 (1.3)	26 (3)	22 (0.3)	1 (0.3)	352 (2.9)	64 (2.3)	–
Other species	13 (0.16)	1 (0.1)	5 (0.07)	–	10 (0.1)	–	6 (0.4)

Results correspond to the number of positive cultures for each dermatophyte and in parentheses is indicated the frequency (in percentage) among all dermatophytes isolated in the study. *n*, number of isolated dermatophytes

## TC u različitim evropskim zemljama

Table 5 Spectrum of dermatophytes in tinea capitis in different European countries

Dermatophyte	Tietz et al. [75] 1999 <i>n</i> = 394 Germany	Hällgren et al. [76] 2004 <i>n</i> = 89 Sweden	Aste et al. [77] 1997 <i>n</i> = 336 Italy	Flammia et al. [78] 1995 <i>n</i> = 210 Italy	Rubio-Calvo et al. [79] 2001 <i>n</i> = 190 Spain	Cuetara et al. [80] 1997 <i>n</i> = 32 Spain	Devliotou-Panagiotidou et al. [81] 2001 <i>n</i> = 35 Greece	Koussidou-Eremondi et al. [82] 2003 <i>n</i> = 280 Greece
Anthropophilic species								
<i>T. violaceum</i>	24 (6.1)	59 (67)	–	12 (5.7)	1 (0.5)	1 (3)	19 (54)	3 (1.1)
<i>T. tonsurans</i>	15 (3.8)	3 (3)	–	–	7 (3.7)	16 (5)	1 (3)	–
<i>T. rubrum</i>	12 (3.1)	–	–	2 (0.9)	–	–	3 (8)	–
<i>T. soudanense</i>	3 (0.8)	12 (14)	–	–	1 (0.5)	2 (6)	–	–
<i>T. schoenleinii</i>	2 (0.5)	–	–	–	1 (0.5)	–	2 (6)	–
<i>M. audouinii</i>	12 (3.1)	–	–	1 (0.5)	1 (0.5)	1 (3)	–	–
<i>M. ferrugineum</i>	1 (0.3)	–	–	–	–	–	–	–
Zoophilic species								
<i>M. canis</i>	216 (54.8)	4 (5)	278 (82.8)	182 (86.7)	119 (62.6)	11 (34)	5 (14)	276 (95.4)
<i>T. mentagrophytes</i>	58 (14.7)	1 (1)	58 (17.2)	6 (2.8)	57 (30)	1 (3)	2 (6)	–
<i>T. verrucosum</i>	32 (8.1)	8 (9)	–	1 (0.5)	3 (1.6)	–	3 (8)	–
Geophilic species								
<i>M. gypseum</i>	4 (1)	–	–	4 (1.9)	–	–	–	1 (0.4)
Other species	17 (4.3)	–	–	2 (1)	–	–	–	–

Results correspond to the number of positive cultures for each dermatophyte and in parentheses is indicated the frequency (in percentage) among all dermatophytes isolated in the study. *n*, number of isolated dermatophytes

## TC u različitim zemljama van Evrope

**Table 6** Spectrum of dermatophytes in tinea capitis in different countries outside Europe

Dermatophyte	Ali-Shtayeh et al. [33] 1998 <i>n</i> = 75 Palestine	Ali-Shtayeh et al. [83] 2002 <i>n</i> = 23 Palestine	Al-Duboon et al. [84] 1999 <i>n</i> = 143 Iraq	Sidat et al. [85] 2006 <i>n</i> = 80 <sup>a</sup> Mozambique	Woldeamanuel et al. [34] 2005 <i>n</i> = 516 Ethiopia	Foster et al. [42] 2004 <i>n</i> = 775 USA
Anthropophilic species						
<i>T. violaceum</i>	62 (82.7)	19 (83)	55 (38.5)	2 (2)	(98.5)	–
<i>T. tonsurans</i>	–	–	–	–	–	(95.8) in 2002
<i>T. rubrum</i>	–	–	–	–	–	(~1)
<i>T. soudanense</i>	–	–	–	–	–	–
<i>T. schoenleinii</i>	1 (1.3)	–	–	–	–	–
<i>M. audouinii</i>	–	–	–	58 (73)	–	–
<i>M. ferrugineum</i>	–	–	–	–	–	–
Zoophilic species						
<i>M. canis</i>	12 (16)	4 (17)	38 (26.5)	–	–	(~1)
<i>T. mentagrophytes</i>	–	–	8 (5.6)	20 (25)	–	(~1)
<i>T. verrucosum</i>	–	–	41 (28.7)	–	(1.5)	–
Geophilic species						
<i>M. gypseum</i>	–	–	1 (0.7)	–	–	–
Other species	–	–	–	–	–	–

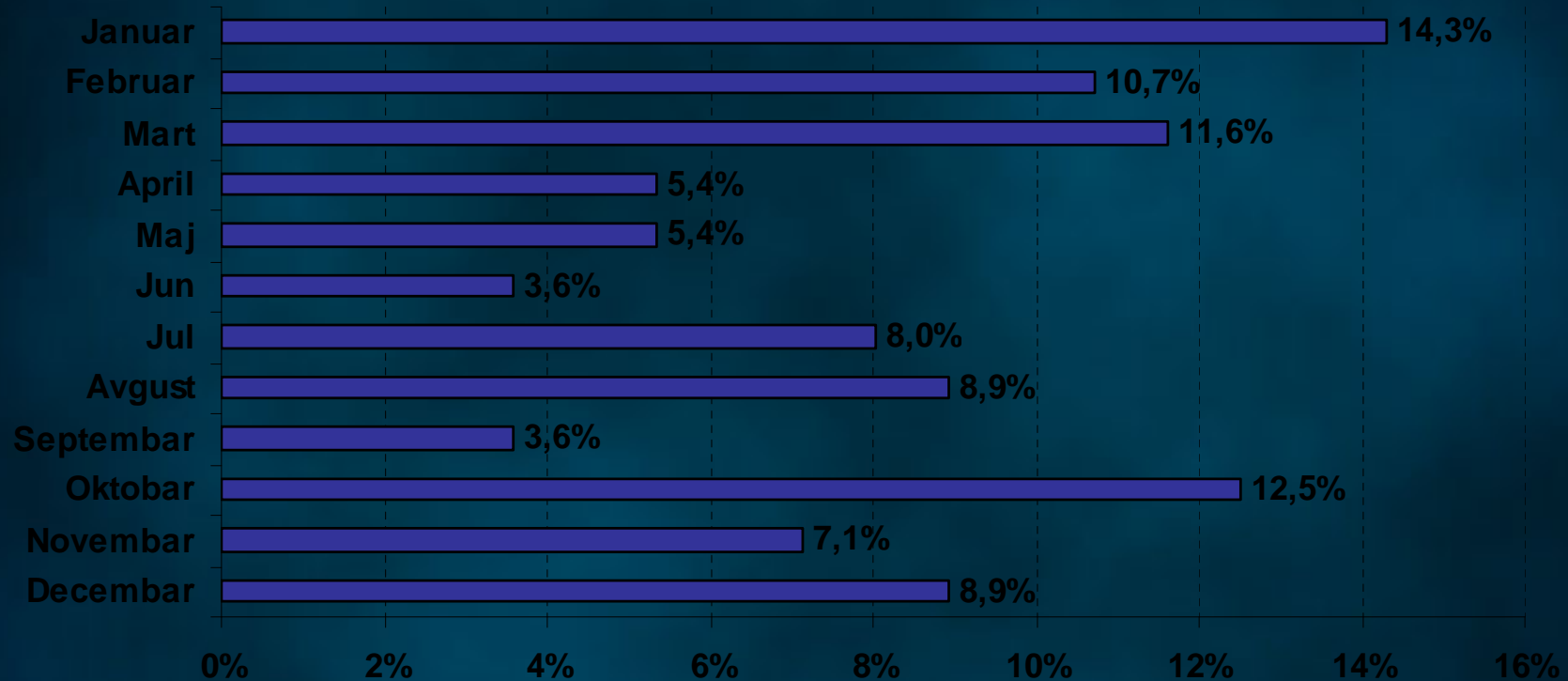
## Transmisija

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- Oboljenje se najčešće javlja kod osoba koje žive u lošim socioekonomskim uslovima, kontagiozno je, često se širi u vidu epidemije
- Može se preneti direktno sa deteta na dete u školama i obdaništima ili sa životinja (mačka, pas, goveče), kao i indirektno
- Uzročnici TC mogu se izolovati sa kapa, češljeva, jastuka, sedišta u pozorištima, prevozu...
- Kratak period inkubacije (obično 1 do 3 nedelje, ponekad samo 2 do 4 dana)



## Distribucija tokom godine



Indija - najveća učestalost od jula do oktobra 49%, početkom zime niska (4,5%)

Kalla G, Begra B, Solanki A, Goyal A, Batra A, Clinicomycological study of tinea capitis in desert district of Rajasthan.

Indian J Dermatol Venereol Leprol. 1995; 61:342-5

## Klinička klasifikacija dermatofitoza

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- **Tinea capitis**
- Tinea barbae
- Tinea corporis (tinea cutis glabrae)
- Tinea manuum et pedis
- Tinea cruris
- Tinea unguium

# TINEA CAPITIS (CAPILLITII)

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- Dermatofitna infekcija folikula dlake i kože kapilicijuma
- Uglavnom je izazivaju antropofilni i zoofilni specijesi mikrosporuma i trihofitona
- Najčešća tinea dečijeg uzrasta

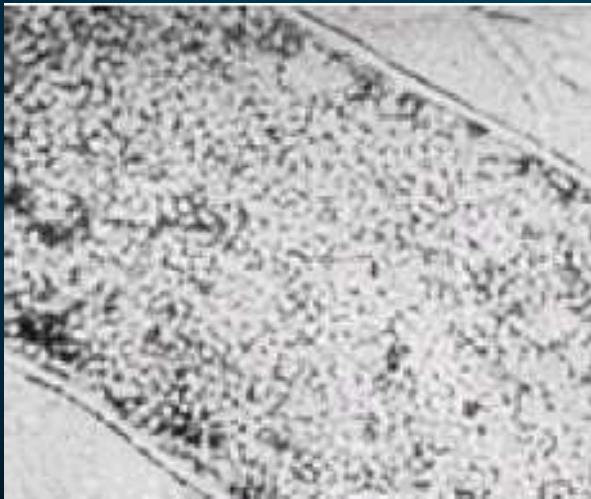
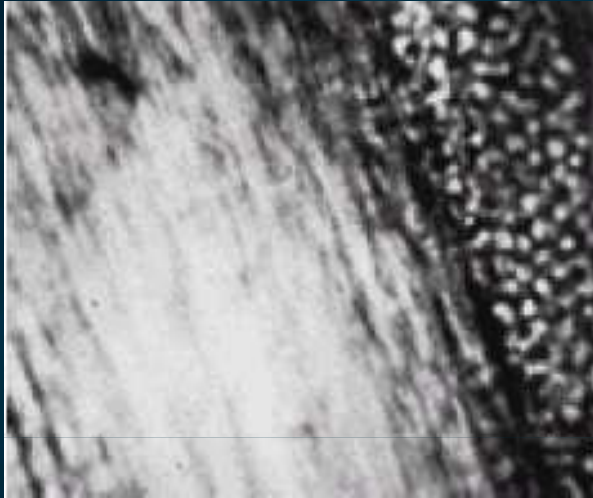


## Etiologija i patogeneza

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Tri tipa invazije dlake:

- **Ectothrix** (microides, megasporon, microsporon)
  - *M. audouinii*, *M. canis*, *T. verrucosum*, *T. mentagrophytes* var. *granulare*
- **Endothrix** - *T. tonsurans*, *T. soudanense*, *T. violaceum*
- **Favus tip** – *T. schonleinii*



# Patogeneza

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- Invazija obično počinje u perifolikularnom delu stratum corneuma
- Posle perioda inkubacije dolazi do infekcije dlake
- Postepeno, hife se spuštaju u intrapapilarni deo dlake sve do granice keratogene zone
- Dalji tok zavisi od ekološkog porekla dermatofita

**Antropofilni** – superficijalni oblici (nema inflamacije, dlaka izmenjena, hroničan tok)

**Zoofilni** – jaki antigeni – imunski odgovor domaćina (T ly) – duboki oblici (jaka inflamacija, dlaka neizmenjena, akutan i subakutan tok, spontana remisija, cikatricijalna alopecija)

## Kliničke manifestacije

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- Neinflamovani – superficijalni oblici
  - prisustvo eritema i sitne skvame
- Inflamovani – duboki oblici
  - karakterišu se prisustvom pustula, supuracije, formiranjem infiltrovanog i eksudativnog plaka (kerion formacija) i regionalnom limfadenopatijom

## **1. TINEA SUPERFICIALIS CAPITIS**

- Microsporia capillitii – “gray patch” ringworm
- Trichophytia superficialis capillitii – “black dot” ringworm

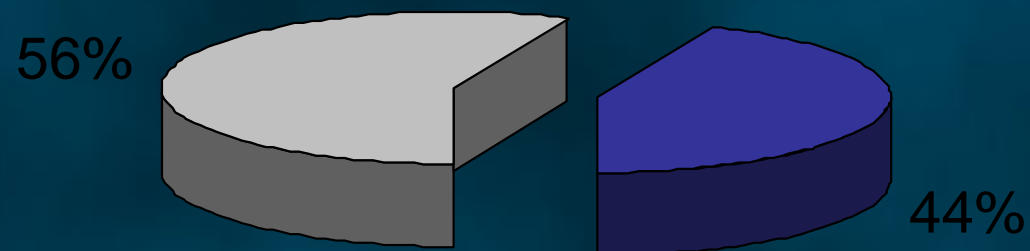
## **2. TINEA PROFUNDA CAPITIS**

- Trichophytia profunda capillitii - Kerion celsi

## **3. FAVUS**

## Klinička slika , KSC 2005-2010.

- Tinea superficialis capilitii (63 pacijenta)
- Kerion Celsi (49 pacijenata)



Tinea superficialis capilitii		Kerion Celsi	
♂	♀	♂	♀
40 (63,5%)	23 (36,5%)	33 (67,4%)	16 (32,6%)

# **TINEA SUPERFICIALIS CAPITIS**



# Microsporia capillitii

- “Gray patch” ringworm
- Uzročnici:  
*Microsporum audouinii*  
(antropofilni)  
*Microsporum canis* (zoofilni)
- Tip invazije dlake -  
ectothrix (microsporon)
- Wood-ova lampa - zelena  
fluorescencija



# Trichophytia superficialis capillitii

- “Black dot” ringworm
- Uzročnik *T. tonsurans* (antropofilni)
- Tip invazije dlake - endothrix
- Wood-ova lampa - nema fluorescencije



## Microsporia capillitii (*M. audouinii*)





## Porodična pojava – TC (*M. audouinii*)



## Porodična pojava – TC (*M. audouinii*)



## Microsporia capillitii (*M. canis*)



# **TINEA PROFUNDA CAPITIS**



# Trichophytia profunda capillitii (Kerion celsi)

- Uzročnici:  
*T. mentagrophytes* var.  
*granulare*, *T. verrucosum*  
(zoofilni)
- Tip invazije dlake -  
ectothrix (microides)
- Wood-ova lampa - nema  
fluorescencije





## Kerion celsi



# Kerion celsi



# Kerion celsi





# Kerion celsi



## **Kerion celsi et folliculitis agminata trichophytica**





## Kerion microsporicum (*M. canis*)



**FAVUS**

# Favus

- Uzročnik *Trichophyton schonleinii* (antropofilni)
- Invazija dlake - favus tip
- Prisustvo skutule
- Wood-ova lampa – plavo-beličasta ili bledo zelena fluorescencija





# Favus



# **TINEA FACIEI**

## Tinea faciei et cutis glabrae



## Tinea faciei (profunda)



**TINEA INCOGNITO**



# Tinea incognita



# **Dermatofitidi (mikidi, -id reakcije)**

## Dermatofitidi (mikidi, -id reakcije)

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- Posledica hipersenzitivnosti
  - folikularne papule
  - erythema nodosum
  - erythema exsudativum multiforme
  - urticaria
- Intradermalne reakcije na trihofitin jako pozitivne (preosetljivost poznog tipa)
- Sterilne lezije
- Povlače se sa regresijom osnovnog oboljenja



# Folikularne papule



# Erythema nodosum

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## Diferencijalna dijagnoza

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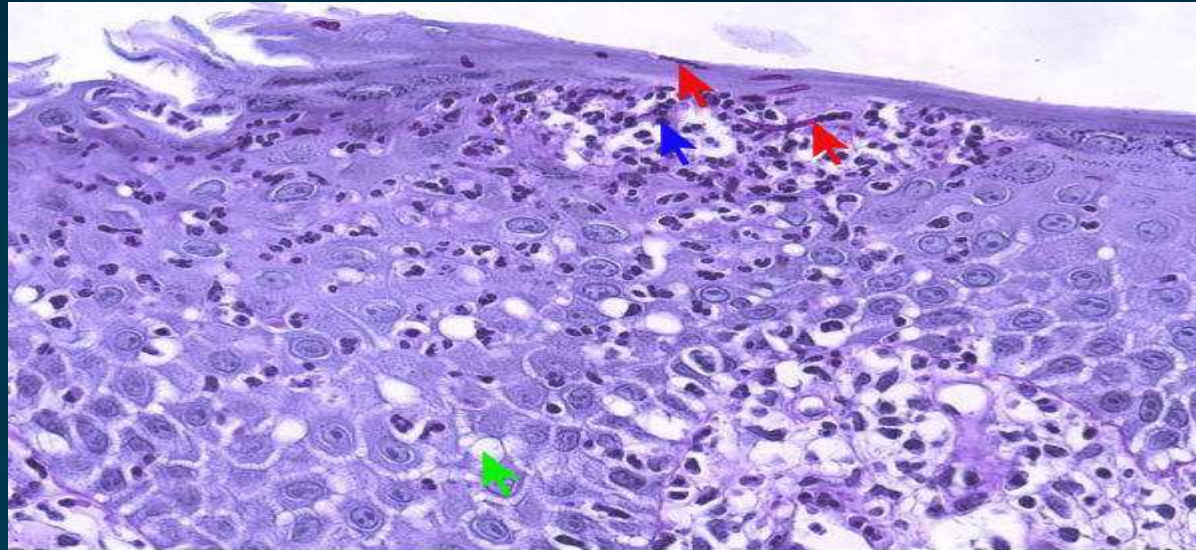
- Pityriasis amiantacea
- Dermatitis seborrhoica
- Dermatitis atopica
- Psoriasis vulgaris
- Alopecia areata
- Lupus erythematoses discoides
- Lichen planus
- Bakterijski folikulitis




# Dijagnostika

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- Anamneza
- Klinički pregled
- Pregled Wood-ovom lampom
- Mikološki pregled (direktan mikroskopski preparat i kultura - standardna podloga za kultivisanje Sabouraud glukoza-agar)
- HP nalaz

## HP nalaz - PAS bojenje



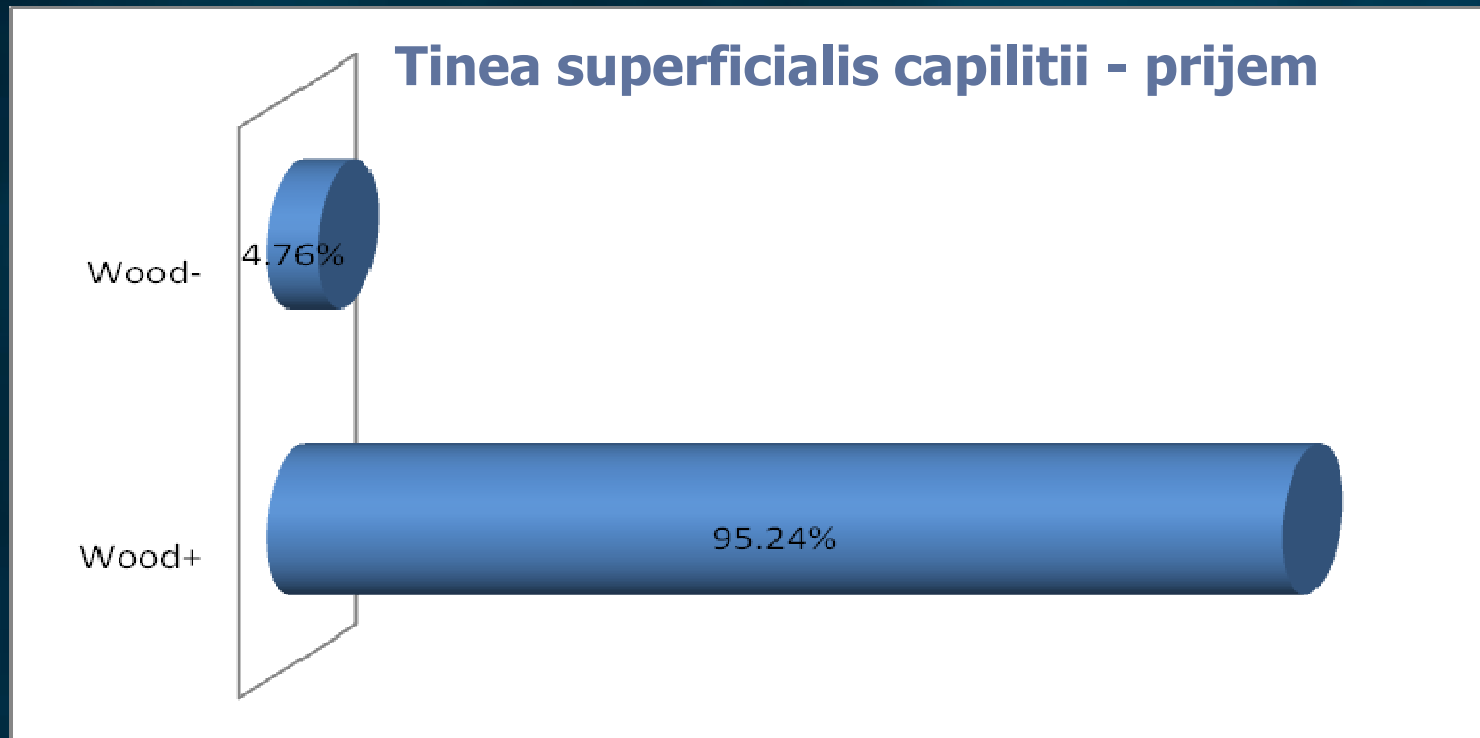
-  **Septate hyphae**
-  **Neutrophils**
-  **Spongiosis**



## Wood test (*Microsporum spp*)



## Pregled Wood-ovom lampom



Negativan nalaz pod Wood-ovom lampom ustanovljen je nakon **19,4 ± 7,5** dana

# Sistemska terapija

## Antimikotici:

- grizeofulvin 15-25 mg/kg
  - itrakonazol 5-10 mg/kg
  - terbinafin 125 mg/dn
  - flukonazol 5-10 mg/kg
- 
- 6-8 nedelje – superficijalni oblici
  - 4-6 nedelja – duboki oblici
- 
- Praćenje hepatograma i KKS (itrakonazol, terbinafin), uz praćenje renalne funkcije (grizeofulvin i flukonazol)



## Sistemska terapija

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- **Antibiotici širokog spektra** (bakt. superinfekcija)  
– 10 dana
- **Kortikosteroidi** (smanjenje inflamacije i mogućnosti nastanka cikatriksa kod tinee profunde) – 2 do 3 nedelje

# Lokalna terapija

## Superficialni oblici

- brijanje jednom nedeljno
- pranje šamponom sa ketokonazolom jednom dnevno
- lokalni antimikotici (imidazolski preparati)

## Duboki oblici

- manuelna epilacija dlake u oboleloj regiji
- energično pranje
- antiseptične boje (sol. eosini aq. 2%)
- antibiotski i imidazolski preparati (klotrimazol, mikonazol)
- u slučaju postojanja keriona ne treba vršiti inciziju ili eksciziju promene

## "Id" reakcije

- opšta i lokalna kortikoterapija

*British Journal of Dermatology* 2000; **143**: 53–58.

## Guidelines for the management of tinea capitis

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Accepted for publication 15 April 2000

### GUIDELINES FOR THE MANAGEMENT OF TINEA CAPITIS 55

**Table 2.** Dosing regimen for tinea capitis

Drug	Current standard dose	Duration
Griseofulvin	10–25 mg/kg daily taken with food divided dose	8–10 weeks
Terbinafine	< 20 kg 62.5 mg od: > 20 < 40 kg 125 mg od: > 40 kg 250 mg od	4 weeks <sup>a</sup>
Itraconazole	5 mg/kg per day	1–4 weeks

<sup>a</sup> Longer for *Microsporum* infections.

Section Editors: Arnold P. Oranje, M.D., and Antonio Torrelo, M.D.

## Guidelines for the Management of Tinea Capitis in Children

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TABLE 1. *Dosing Regimens for the Treatment of Tinea Capitis*

Antifungal agent	Dosage	Duration of treatment
Griseofulvin Microsize Ultramicrosize	20–25 mg/kg/day 10–15 mg/kg/day	6–12 weeks or longer until fungal cultures are negative
Terbinafine	10–20 kg: 62.5 mg/day 20–40 kg: 125 mg/day > 40 kg: 250 mg/day Or 4–5 mg/kg/day	<i>Trichophyton</i> spp.: 2–4 weeks <i>Microsporum</i> spp.: 8–12 weeks
Itraconazole	Capsules: 5 mg/kg/day Oral solution: 3 mg/kg/day	Daily dosing: 2–6 weeks Pulse regimen (1 week with 2 weeks off between the first 2 pulses and 3 weeks between the 2nd and 3rd): 2–3 pulses (range: 1–5)
Fluconazole	Daily dosing: 5–6 mg/kg/day Weekly dosing: 8 mg/kg once weekly	3–6 weeks 8–12 weeks

# Terapija

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1. Opšta terapija: itrakonazol 5-10 mg/kg
  2. Lokalna terapija: imidazolski preparati i lokalna obrada
- Laboratorijske analize:
    - hepatogram

## Zaključak

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1. Tinea superficialis se javlja češće nego Kerion celsi
2. Najčešći izazivači pripadaju specijesima *Microsporum*
3. Najveća učestalost infekcije ustanovljena je tokom zime i jeseni
4. Sistemska terapija itrakonazolom dovela do izlječenja kod svih pacijenata
5. Terapija nije bila praćena patološkim poremećajem pokazatelja funkcije jetre.



**HVALA NA PAŽNJI!**

