·研究原著·

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洞庭湖区退田还湖试点1990/2002血吸虫病情与螺情分析

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Relationship between schistosomiasis prevalence and snail status during the period from 1990 to 2002 in the areas of "breaking dikes or opening sluice for waterstore" in Dongting Lake

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【Abstract】 AIM: To analyze the relationship between schistosomiasis prevalence and snail status during the period from 1990 to 2002 in the areas of "breaking dikes or opening sluice for waterstore" in Dongting Lake, to afford reference to the work of schistosomiasis prevention. **METHODS**: The schistosomiasis prevalence and snail density during the period from 1990 to 2002 in the areas of "breaking dikes or opening sluice for waterstore", and in the controlled area were compared by statistical methods. The relationship between schistosomiasis prevalence, snail density and snail area was analyzed. **RESULTS**: Snail density in the areas of "breaking dikes or opening sluice for waterstore" increased significantly ($P<0.05$) after 1998 and that in the controlled area also increased ($P>0.05$). Schistosomiasis prevalence in the areas of "breaking dikes or opening sluice for waterstore" increased significantly ($P<0.01$) after 1998 and that in the controlled area decreased ($P<0.05$). The chart showed schistosomiasis prevalence in thoroughly-abandoned area increased significantly ($P<0.05$), that in partially abandoned area increased unsignificantly ($P>0.05$) and that in the controlled area even reduced. Schistosomiasis prevalence was correlated positively with the snail area ($P<0.01$, $r=0.788$) and the snail density ($P<0.05$, $r=0.764$). **CONCLUSION**: Schistosomiasis prevalence during the period from 1990 to 2002 in the areas of "breaking dikes or opening sluice for waterstore" in Dongting Lake was correlated positively with the snail area and the snail density; The policy of "breaking dikes or opening sluice for waterstore" made schistosomiasis prevalence more complicated.

【Keywords】 Schistosomiasis; snails; epidemiology

【摘 要】目的:分析1990/2002年洞庭湖区退田还湖试点血吸虫病情与螺情的变化规律及两者的关系,为当地退田还湖试点的血吸虫病防治工作提供参考依据. **方法**:比较退田还湖试点退田还湖前后及其与对照点的粪检阳性率和活螺密度,分析粪检阳性率和活螺密度、有螺面积的关系,进行流行病学描述. **结果**:退田还湖后试点的活螺密度显著增加($P<0.05$)而对照点有增加但不显著($P>0.05$),退田还湖后试点粪检阳性率显著增加($P<0.01$),而对照点减少且有显著性差异($P<0.05$). 变化趋势图显示双退点有明显升高趋势,单退点升高趋势不明显,对照点有下降趋势,血吸虫粪检阳性率与有螺面积呈正相关($r=0.788$, $P=0.004$),血吸虫粪检阳性率与活螺密度变化呈正相关($r=0.764$、$P=0.045$). **结论**:洞庭湖区退田还湖试点血吸虫病的流行与有螺面积、钉螺密度关系密切,退田还湖使得血吸虫病地流行复杂化.

【关键词】 血吸虫病;螺;流行病学

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0 引言

随着我国退田还湖工程的进行,血吸虫病的病性、螺情有了新的变化[1-2],从而给血防工作带来了新的课题. 我们收集了国家"十五"课题湖南洞庭湖区退田还湖4个试点及2个对照点1990/2002年的病情、螺情资料进行分析,以期阐明其变化规律,也为当地退田还湖试点的血防工作提供参考依据.

1 材料和方法

1.1 材料 收集洞庭湖区4个退田还湖试点(单退点、双退点各2个)及2个对照点(单退、双退各1个对照)1990/2002年连续病情和螺情资料(个别年份

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资料缺失者剔除). 单退点(退人不退田,洪水期人转移、洪水过后返回种田)选择澧县濠口村、湘阴县中山村,对照点(即未退田还湖)为澧县昔阳村;双退点(既退人又退田,为泄洪而完全废弃)为华容县集成垸、汉寿县青山湖,对照为君山区的长江村. 对照点选择依据:① 与试点地理环境条件相近; ② 人口分布与组成相似. 病情资料主要选择粪便检查诊断得出的检出率. 收集病情资料内容包括:检查人口数、粪检阳性数、阳性率、血检阳性数、感染度等. 螺情调查以环境抽样为主,并结合系统抽样. 调查地点包括草滩、芦滩、洼地沟渠、涵闸内外口等. 采用压碎法鉴定钉螺的死活及有无感染性钉螺. 收集螺情资料包括调查面积、活螺框数、捕获活螺数、活螺密度、感染螺密度. 全部资料由湖南省血防所及各基层血防站提供.

1.2 方法 所有资料均由 SPSS11.0, Excel 2000 分析完成. 流行病学方法为描述性研究.

统计学处理:相关性检验、方差分析、秩和检验,数据以 $\bar{x} \pm s$ 表示.

2 结果

2.1 螺情变化 分析 1998 年退田还湖前后活螺密度的变化,结果显示:退田还湖后试点活螺密度显著增加($P<0.05$)而对照点有增加但不显著($P>0.05$, Tab 1). 退田还湖前后试点与对照点比较无显著性差异($P>0.05$).

表 1 试点与对照点退田还湖前后活螺密度(只/0.11 m^2)比较

Tab 1 Comparison of snail density before and after 1998　　($\bar{x} \pm s$)

Group	Sample 1		Sample 2	
	Before 1998 (n)	After 1998(n)	Before 1998(n)	After 1998(n)
Trial	0.01 ±0.03[a](19)	0.04 ±0.06(17)	0.02 ±0.03(14)	0.05 ±0.05(8)
Contrast	0.01 ±0.03(9)	0.04 ±0.04(9)	0.01 ±0.02(15)	0.06 ±0.06(8)

[a] $P<0.05$ *vs* after 1998.

2.2 病情变化 选择较完全的粪检阳性率为指标比较病情变化(Tab 2),退田还湖后试点粪检阳性率高于退田还湖前($P<0.05$),对照点退田还湖后粪检阳性率低于退田还湖前($P<0.01$),退田还湖前试点与对照点比较粪检阳性率低且有显著性差异($P<0.05$),退田还湖后试点显著高于对照点($P<0.05$).

表 2 试点与对照点退田还湖前后粪检阳性率比较

Tab 2 Comparison of schistosomiasis prevalence before and after 1998　　(%, $\bar{x} \pm s$)

Group	Before 1998(n)	After 1998(n)
Trial	8.96 ±4.23[be](17)	16.03 ±7.34[f](18)
Contrast	15.75 ±9.17[d](9)	7.33 ±3.81(7)

[bd] $P<0.01$ *vs* after 1998; [ef] $P<0.05$ *vs* contrast.

选双退点(华容县集成垸)、单退点(澧县濠口村)及对照点(澧县昔阳村)各一作粪检阳性率变化趋势图. 退田还湖以前 3 个点均有下降,以对照点最明显,退田还湖后 3 个点均有上升,以双退点最明显(Fig 1). 若添加 3 个点 1990/2002 年线性趋势线可明显地看到,从整体上双退点有明显升高趋势,单退点升高趋势不明显,对照点有下降趋势.

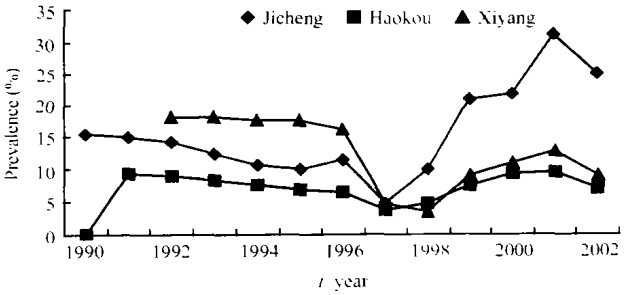

图 1 1990/2002 年粪检阳性率(%)变化趋势图

Fig 1 Change of schistosomiasis prevalence (1990/2002)

2.3 病情与螺情关系

2.3.1 *病情与螺面积* 以华容县集成垸为例,将 1990/2001 年粪阳率和有螺面积(垸内)进行相关分析,结果显示:血吸虫粪检阳性率与有螺面积变化呈正相关($r=0.788$, $P=0.004$). 退田还湖以前,粪检阳性率逐年降低,有螺面积有逐年降低的趋势,退田还湖以后粪检阳性率逐年升高,调查的有螺面积变化不大(Tab 3).

2.3.2 *病情与活螺密度* 将各试点 1990/2001 年粪阳率与相应时段的活螺密度进行相关分析,结果显示:血吸虫粪检阳性率与活螺密度变化呈正相关($r=0.764$, $P=0.045$).

表3 集成垸粪检阳性率和有螺面积

Tab 3 Prevalence and snail area (1990/2001)

Year	Prevalence(%)	Snail area($10^4 m^2$)
1990	15.54	28.47
1991	15.11	30.93
1992	14.38	29.67
1993	12.56	25.13
1994	10.83	27.93
1995	10.23	20.4
1996	11.70	21.67
1997	10.74	21.67
1999	21.28	0.16
2000	22.11	0.16
2001	31.48	0.16

3 讨论

湖南省洞庭湖区的地理环境复杂,历来为国家血吸虫病重点监测区,其病情螺情资料较全,有较好的代表性. 我们希望通过对该地区的分析阐明血吸虫病变化规律,也希望在前人的研究基础上[2~7],为遥感技术分析退田还湖对血吸虫病传播的影响打基础. 我们选择粪检阳性率为病情指标,比血检资料全面因而更能反映实际情况. 选活螺密度及有螺面积为螺情指标,较其他螺情指标全面客观.

1998年特大洪水后退田还湖使得钉螺地孳生环境发生了改变,活螺密度是很好的评价指标. 退前、退后试点与对照点活螺密度比较无显著性差异($P>0.05$)提示对照点与试点可比性好,退田还湖后4个试点活螺密度显著增加($P<0.05$)而对照点无明显增加($P>0.05$)进一步说明退田还湖使得钉螺有扩散的趋势. 一般认为钉螺主要有4种扩散方式① 钉螺主动移行;② 随附着物顺水漂流;③ 人为因素如垸内外沟渠清理;④ 人畜携带. 而退田还湖引起的钉螺扩散是多因素造成,主要为第2种原因造成.

同理,粪检阳性率是反映病情的指标之一,退后试点粪检阳性率显著增加($P<0.01$)而对照点减少且有显著性差异($P<0.01$),说明退田还湖使得人群粪检阳性率增加. 退前试点与对照点比较粪检阳性率低且有显著性差异($P<0.05$)、退后试点显著高于对照点($P<0.05$)进一步证实了退田还湖可以引起人群感染率的增加. 也从一方面说明了退田还湖对粪检阳性率的影响.

血吸虫粪检阳性率与活螺密度变化呈正相关($r=0.764$, $P=0.045$)说明了粪检阳性率与活螺密度关系密切,在一个指标不全的情况下,可以用另一个指标替代. 集成垸1990/2001年血吸虫粪检阳性率与有螺面积变化呈正相关($r=0.788$, $P=0.004$)也同样说明指标之间的替代性. 退田还湖以前,粪检阳性率逐年降低,退田还湖以后粪检阳性率逐年升高也说明了退田还湖对粪检阳性率的影响. 该试点结果证实了人群粪检阳性率与钉螺密度之间的关系,从而说明监测钉螺密度可以间接反映人群患病率的情况. 而退田还湖后其有螺面积下降,证实了钉螺面积仍有波动,可能与当地血防部门灭螺有关.

国内也有其他洪灾对血吸虫病传播的影响的研究报道[8~11],与本研究比较结果不尽相同,如杨美霞认为钉螺面积1998年后有增长的趋势[11],司马衍祥认为实施退田还湖的废弃围垸蓄洪后头两年血吸虫病疫情变化不太明显[8]. 我们用连续10 a的资料和同期对照、历史对照同时进行了比较,而不足之处在于只选了资料较为完备的指标进行了比较,主要原因为基层资料不全,个别试点资料因洪水时未能保全.

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