中国寄生虫学与寄生虫病杂志
CHINESE JOURNAL OF PARASITOLOGY AND PARASITIC DISEASES
ISSN 1000-7423
CN 31-1248/R
主管：中华人民共和国国家卫生和计划生育委员会
主办：中华预防医学会
中国疾病预防控制中心寄生虫预防控制所

中国寄生虫学与寄生虫病杂志 » 2013, Vol. 31 » Issue (3) :206-211 DOI:

“以机代牛”等传染源综合治理措施防治血吸虫病的效果评价

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Evaluation of the Comprehensive Schistosomiasis Control Measures with Emphasis on Infection Source of Replacing Cattle with Ma

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摘要 目的 评价“以机代牛”等传染源综合治理措施对血吸虫病的防治效果。 方法 2011年在湖北省血吸虫病重度流行区选取6个已实施“以机代牛”等传染源综合治理措施的行政村（即荆州区的李埠镇杨井村和太湖管理区岳台村、监利县的新沟镇顺丰村和程集镇张马村、江陵县的马家寨乡金旗村和资市镇玉古村）为干预组，2个未实施该措施的行政村(即石首市的小河口镇老洲岭村和大垸镇中岭子村）为对照组进行效果评估。内容包括，采用整群随机抽样调查人群感染情况，采用改良加藤法检查粪便，每个村调查人数不少于300人；调查全部耕牛感染情况，采用塑料杯顶管孵化法检查粪便。采用系统抽样法调查钉螺感染情况，并在钉螺调查环境中调查野粪的感染情况（用塑料杯顶管孵化法，1粪3检）。分别对2007年（基线情况）、2009年（干预前）和2011年（干预后）干预组和对照组的防治效果进行比较分析。 结果 干预组，人群的血吸虫感染率由实施“以机代牛”等综合治理措施前（2007年、2009年）的3.6%（135/3 772）和2.0%（63/3 116）降至2011年的0.9%（21/2 396）（χ2=43.411，χ2=11.840，P<0.05）；至2011年已无存栏耕牛；2010-2011年人群和耕牛的血吸虫感染率下降幅度分别为52.6%和100%。对照组，2007、2009和2011年的人群感染率分别为4.5%（64/1 410）、2.6%（34/1 294）和1.8%（24/1 320），2007和2011年间的差异有统计学意义（χ2=16.178，P<0.05），但2009和2011年间的差异无统计学意义（P>0.05）；2007、2009和2011年耕牛感染率分别为5.1%（8/158）、1.6%（3/187）和1.6%（3/189）（χ2=3.387，P>0.05）；2010-2011年人群和耕牛感染率的下降幅度分别为25.0%和5.9%。2011年的调查结果显示，干预组和对照组人群感染率的差异有统计学意义（χ2=6.309，P<0.05）；两组调查点均未查到感染性钉螺；干预组未查到阳性野粪，对照组野粪阳性率为7.5%（3/40）。 结论 实施“以机代牛”等传染源综合治理措施可有效阻断血吸虫病的传播，人群、耕牛血吸虫感染率明显降低。

关键词： 血吸虫病 传染源 以机代牛 感染率

Abstract： Objective To evaluate the effect of comprehensive measures with an emphasis on schistosomiasis infection source control by replacing cattle with machine. Methods In 2011， 2 villages from each of Jingzhou District, Jianli County and Jiangling County, Hubei Province, were selected as intervention group where the comprehensive measures were implemented, while 2 villages from Shishou City served as control with routine control activities. A cluster random sampling was carried out in the 8 villages with more than 300 people in each village were sampled. Stool examination using modified Kato-Katz was applied for identification of the infected persons and hatching test for cattle survey. The systemic sampling was applied for snail survey, fecal specimens from the field were examined by hatching test. Each sample was examined three times. Data were collected for the analysis of control effect between intervention and control groups in 2007 (baseline), 2009 (before implemention of comprehensive measures) and 2011 (post-intervention). Results In intervention villages, the overall prevalence in human reduced significantly from 3.6% （135/3 772） in 2007 and 2.0% (63/3 116) in 2009 to 0.9% （21/2 396） in 2011 （χ2=43.411， χ2=11.840， P<0.05）. Until 2011, there were no cattle in intervention group; the prevalence decreased by 52.6% in huamn and about 100% in cattle from 2010 to 2011. In control group, the infection rate in residents in 2007, 2009 and 2011 was 4.5% （64/1 410）, 2.6% (34/1 294) and 1.8%（24/1 320）, respectively（χ2=16.178， P<0.05）, and 5.1%（8/158） in 2007, 1.6% (3/187) in 2009 and 1.6%（3/189） in 2011 in cattle, respectively（χ2=3.387， P>0.05）. The infection rate in human and cattle fell by 25.0% and 5.9% from 2010 to 2011, respectively. There was a significant difference in human infection rate between the intervention and control groups after intervention（χ2=6.309， P<0.05）. No infected snails were detected in intervention and control groups. No positive feces from the field was found in the intervention group， 7.5% positive rate was recorded in the control. Conclusion The comprehensive measures focused on infection source control

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by replacing cattle with machine can effectively control Schistosoma japonicum transmission, with a siginificant decrease