Research Paper

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A Swot Analysis of Different Insecticides Used For Indoor Residual/Space Spray in Aiims Jodhpur – an Effective Instrument for Measuring Community Acceptability

Medical Science

KEYWORDS : Pyrethrum, Malathion, Deltamethrin, Community

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ABSTRACT

Department of Community Medicine and Family Medicine in AIIMS Jodhpur is the nodal office for mosquito control activities and its surveillance in AIIMS Jodhpur since 10th October 2012. The department is responsible for carrying out antilarvicidal and antiadult measures in the whole AIIMS campus. We have been using Temephos/Abate for potable water and MLO(Mosquito larvicidal oil) for dirty water as antilarval measures successfully with >95% acceptability. But antiadult measures received a set back with precedented failure. Since October the department has tried three different chemicals for IRS (Indoor Residual Spray) with different levels of acceptance. A round of focussed discussions were carried out within the college amongst different strata of community to determine the different reasons of lower coverage of Pyrethrum (98.4%) and Malathion-I (89.7%) and Malathion-II(82.9%) with highest of Deltamethrin (99%). It was concluded that Deltamethrin was a grand success amongst residents albeit high cost and the reason attributed were strong administrative will and commitment, stringent monitoring, rising trend of dengue cases in Jodhpur during the season and odourless and stainless nature of the chemical.

Introduction:

All India Institute of Medical Sciences (AIIMS) Jodhpur, one of the medical institutes of national importance in India began its mosquito control activities and its surveillance on 10th October 2012 to prevent and protect its residents and patients from mosquito borne diseases. Department of Community Medicine and Family Medicine was made the nodal office for successfully carrying out the activities related to mosquito control. The antilarvicidal measures being used are Temephos/Abate for portable water and MLO(Mosquito larvicidal oil) for dirty water and its acceptability and coverage have always been more than 95%. But antiadult measures remained a concern for us with poor acceptability and low coverage. In last one year, three different insecticides were used as antiadult measures with variable response and acceptability[1]. And so this Qualitative study was conducted to know the resident's perceptions regarding insecticides perceived value, safety, effectiveness and previous experience and the inconvenience that they may pose on individual lifestyles and to identify the barriers hampering the antiadult measures. The findings were used to adopt and advocate for a insecticide as an antiadult measures by the nodal office for maximum coverage with better acceptability.

Methodology:

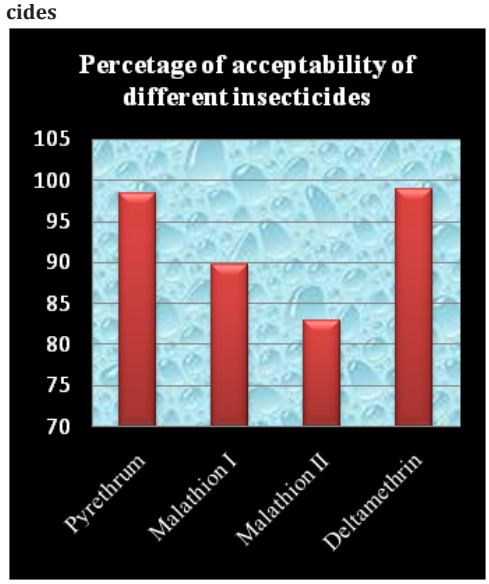
This Qualitatitive study was conducted from April to November 2013 in the campus of AIIMS. The study site was purposefully selected to capture the views of those living in the AIIMS residential campus so that vector control programme in the campus can be implemented successfully. Focussed discussions after every round of sprays and weekly meetings after every antilarval measures were carried out. These discussions were stratified at inhouse residents(comprising of Doctors, MBBS students, other medical and non medical staff), worker involved in sprays, departmental and institutional level to explore resident acceptability and their preference. House to house assessment was also done qualitatively to know the reasons of refusal against the sprays. The logistics and the data were managed by the entomologist and resident doctors of the department.

Results:

From February 2013 onwards, three different insecticides as antiadult measures were used namely Pyrethrum, Malathion(Round I & II) and Deltamethrin(synthetic pyrethroids)[2].

Pyrethrum: March 2013
Malathion I: April 2013
Malathion II: July 2013
Deltamethrin: October 2013

Figure 1. Percentage of acceptability of different insecticides



SWOT Analysis of the insecticides was done based on discussions to understand the levels of acceptability of different insecticides [3]

Insecticide Rounds	Strength	Weakness	Threat	Opportunity
Pyrethrum	-Low toxicity -Used for the first time	Little residual action	Lower feasibility in long run	Can be used intermittently
Malathion I	Residual effect of 3 months	-Stringent smell -Stains	Poor compliance in next round	Its effectiveness may lead to good acceptance
Malathion II	-Longer residual effect -Was used in peak months	-Inconvenience -Bad past experience -Complacency -Staff crunch	Failure of mosquito control measures	Rising cases of mosquito borne diseases in other parts of city
Deltamethrin	-Residual effect of 6 months -Strong administrative will and support -Stringent monitoring -Odourless and Stainless	High Cost	-Low Budget for vector control	Feasible in long run

Conclusions:

Successful implementation of antiadult measures for mosquito control totally relies on community perceptions and proper advocacy. This small study has illuminated a number of important everyday life issues, which remains a barrier to considerable acceptance of various vector control measures being carried out in community and has clarified further questions in future research studies. The study highlights the need of strong advocacy, non complacent attitude, effective monitoring and availability of proper infrastructure with least inconvenience to the community for successfully running a programme at community level.

Acknowledgement:

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