without significant improvement. Of 17 patients, four were lost to follow up after 2–4 weeks and two left the area because of job or studies. Eleven evaluable patients received 25–44 (mean 33) exposures of UVB over 4–6 months.

Eight (72.7%) of 11 patients showed evidence of repigmentation and the remaining three showed no response. Repigmentation was diffuse or follicular. Repigmentation was only 10% in four patients and up to 25% in another four. New lesions continued to appear even when old lesions were improving. None of the patients had satisfactory cosmetic improvement.

The side effects were recorded in nine of the 17 patients treated. Generalized burning sensation and erythema occurred in six, xerosis in two and one patient felt hot and scared in the chamber. Two patients required temporary interruption of UVB for 1 week because of erythema and burning.

Comment

Heliotherapy at the Dead Sea and narrow band UVB are effective in the treatment of generalized vitiligo[1,2,4]. Narrow band UVB leads to repigmentation in up to two-thirds of patients at 3 months. It has advantage over PUVA that very low cumulative doses are required and protection of eyes after UVB exposure is not required. Repigmented areas with UVB have less contrast with surrounding skin compared to PUVA[1]. Narrow band (TL-01) UVB in children resulted in overall 75% improvement in 53% patients in 1 year[2].

Broad band UVB was first used in treatment of vitiligo by Koster and Wiskemann in 1990[4]. In a survey of dermatologists in the Netherlands, the response of vitiligo to broad band and narrow band UVB was considered comparable. In the present study, broad band UVB was able to produce repigmentation in 8 of 11 evaluable vitiligo patients after a mean of 33 exposures. Repigmentation was only 10–25% and was cosmetically unacceptable. The poor response in this study could also be due to the fact that most had the resistant type of vitiligo with average duration of 6 years. The side effects like burning, erythema and dryness were frequent and may be reduced by starting at lower dose such as 0.02–0.03 J/cm^2 and increasing gradually.

UVB therapy requires reorientation of technical staff who are trained to administer longer exposures in the PUVA chamber. Patient education is essential regarding benefits of UVB compared to PUVA and likelihood of being given very short exposure compared to patients receiving PUVA.

We conclude that broad band UVB given twice a week over 4 months is not effective in eliciting cosmetically acceptable response in vitiligo in India.

References

1 Westerhof W, Nieuweboer-Krobotova L. Treatment of vitiligo with UV-B radiation Vs topical psoralen plus UV-A. *Arch Dermatol* 1997;**133**:1525–8

2 Njoo MD, Bos JD, Westerhof W. Treatment of generalised vitiligo in children with narrow band (TL-01) UVB radiation therapy. *J Am Acad Dermatol* 200;**42**:245–53

3 Kushelevsky AP, Harari M, Kudish AI, Hristakieva E, Ingber A, Shani J. Safety of solar phototherapy at the Dead Sea. *J Am Acad Dermatol* 1998;**38**:447–52

4 Koster W, Wiskemann A. Phototherapie mit UV-B bei vitiligo. *Z Hautkr* 1990;**65**:1022–9

5 Njoo MD, Bossuyt PM, Westerhof W. Management of vitiligo. Results of a questionnaire among dermatologists in the Netherlands. *Int J Dermatol* 1999;**38**:866–72

Effectiveness of a health education intervention in a war environment

A S Blair MBChB MPM[1,2] C Shiels BA MPhil[2]

[1]Médecins Sans Frontières, 124–132 Clerkenwell Road, London EC1R 5DJ; [2]Mersey Primary Care Research and Development Consortium, Department of Primary Care, Whelan Building 2nd Floor, Brownlow Hill, Liverpool L69 3GB, UK

Correspondence to: Dr A S Blair
E-mail: alistair.blair@virgin.net

TROPICAL DOCTOR, 2002, **32**, 94–97

Introduction

Since 1983, a civil war has persisted in Sri Lanka between Government Forces and the Tamil Tigers who seek an independent Tamil homeland in the North and East of the country. The population of Wanni region, Northern Sri Lanka, have been particularly affected by the war: living in a confined area surrounded by an active front line. Many have been displaced and depend on food assistance[1].

Malaria is the leading cause of illness in Wanni. Nearly 25% of all outpatient morbidity and a greater proportion of hospitalization can be attributed to this disease. In 1997, it was reported as the leading cause for hospitalization and also the leading cause of death in hospitals in the two Wanni districts (Mullaitivu and Kilinochchi)[2]. A total of 261 deaths were attributed to malaria, representing 80% of the total malaria deaths in Sri Lanka. The current levels of malaria in Sri Lanka are far higher than those of 30 years ago[3], and this may be associated with a breakdown in health structures in areas affected by the conflict.

Médecins Sans Frontières (MSF) has been working in Sri Lanka on both sides of the front line continuously since 1986, supporting the healthcare service through public health activities and by filling hospital posts vacated by the many specialists who have fled the war. Malaria education was considered a priority. However, communication tools (radio, print, television and internet) are extremely limited, and the movement of healthcare workers severely restricted by the conflict. A booklet on malaria containing health education materials and messages relevant to the population was distributed within the active conflict areas.

Methods

The study was carried out between April and November 1999 in Wanni Region, Northern Sri Lanka. The intervention consisted of the production and distribution

Table 1 Items on malaria knowledge questionnaire and proportions of correct answers

Question	Correct answer	Related to information in booklet	Values are percentages (numbers) answering correctly: Group 1 (n=200)	Group 2a (n=79)	Group 2b (n=121)
Malaria is spread by which of the following					
The air?	False	No	96.0(192)	69.6(55)	82.6(100) ***
Mosquitoes?	True	Yes	98.0(196)	98.7(78)	98.3(119)
Contact with people suffering from malaria?	False	No	96.0(192)	72.2(57)	86.8(105) ***
Which of the following groups are at high risk of dying from malaria?					
Children under 5?	True	Yes	83.5(167)	91.1(72)	95.0(115) **
Pregnant women?	True	Yes	25.5(51)	53.2(42)	55.4(67) ***
Young men?	False	No	94.5(189)	89.9(71)	86.8(105)
Can you reduce your chances of getting malaria by					
Using bed nets?	True	Yes	64.5(129)	86.1(68)	91.7(111) ***
Washing before dark?	False	No	98.0(196)	84.8(67)	86.8(105) ***
Taking antibiotics?	False†	No	35.5(71)	15.2(12)	7.4(9) ***
If you have malaria, and have been given drugs from the clinic, you should					
Stop taking them when you feel better?	False	No	76.0(152)	55.7(44)	61.2(74) **
Give some to your family to stop them getting malaria?	False	No	97.0(194)	59.5 (47)	67.8(82) ***
Take a repeat dose if you vomit within an hour of swallowing the tablets?	True	Yes	78.5(157)	88.6(70)	95.9(116) ***
Effective treatments for malaria include					
Tablets of amoxycillin?	False	No	97.0(194)	83.5(66)	89.3(108) ***
Tablets of chloroquine?	True	Yes	98.0(196)	100.0(79)	99.2(120)
Injections of penicillin?	False	No	97.0(194)	78.5(62)	86.8(105) ***
In Sri Lanka					
Malaria affects more people now than 30 years ago?	True	No	45.5(91)	79.7(63)	76.0(92) ***
Most drugs are useless due to resistance?	False	Yes	96.0(192)	74.7(59)	76.9(93) ***
A blood test is essential before starting treatment?	False	Yes	5.5(11)	6.3(5)	3.3(4)
Mosquitoes breed in					
Open wells	True	Yes	9.0(18)	38.0(3)	29.8(85) ***
Drainage ditches	True	Yes	80.0(160)	86.1(68)	91.7(111) *
In rubbish or waste piles	False	No	33.5(67)	21.5(17)	7.4(9) ***

Group 1=Pre-intervention group (n=200); 2a=post-intervention group not seeing booklet (n=79); 2b=post-intervention group seeing booklet (n=121) *$P<0.05$ **$P<0.01$ ***$P<0.001$. †No antibacterials with antimalarial activity are recommended by the National Anti-Malaria Campaign guidelines

Table 2 Distribution of numbers of correct answers given by pre- and post- intervention groups: all 21 items

Group	No. of correct answers (maximum 21): Lower quartile	Median	Upper quartile	Mean rank
1	14	15	16	146.6 *
2a	13	14	16	123.2
1	14	15	16	161.7
2b	14	15	16	159.8

1=Pre-intervention group (n=200); 2a=post-intervention group not seeing booklet (n=79); 2b=post-intervention group seeing booklet (n=121); *$P<0.05$

Table 3 Distribution of numbers of correct answers given by pre- and post- intervention groups: 10 items in questionnaire related to information within booklet and 11 items in questionnaire not related to information within booklet

Group	No. of correct answers (within booklet – maximum 10): Lower quartile	Median	Upper quartile	Mean rank	No. of correct answers (not related to booklet – maximum 11): Lower quartile	Median	Upper quartile	Mean rank
1	6	7	7	124.2	8	9	9	156.8 ***
2a	7	7	8	180.1 ***	5	7	9	97.6
1	6	7	7	129.9	8	9	9	187.6 ***
2b	7	7	8	212.5	7	8	8	117.1

***=$P<0.001$

of a booklet containing health information about malaria. It was written in Singhala and Tamil, the two national languages. Recent colour photographs of medical clinics and diagrams were used wherever appropriate. To increase the appeal of the booklet the back covers were designed as a calendar and the last 10 pages were designed as an address booklet. In all, 25 000 copies were distributed at a cost of £0.08 each, giving a coverage of one booklet per 2.6 families (population 376 365[4] and average family size 5.7[1]). They were distributed between August and September directly by medical and non-medical MSF staff, at rural clinics and where other opportunities existed, throughout the Wanni region. The two high-risk groups, children and pregnant mothers were targeted[5]. The distribution was not accompanied by any other forms of malaria health education.

To assess the effectiveness of the intervention, a 21-item questionnaire was given by health volunteers to independent groups of parents, before and after the intervention (Table 1). Ten of the items in the questionnaire related directly to information in the intervention booklet. The remaining 11 items, related to malaria issues which were not covered in the booklet, and were considered 'control' questions. The control within the questionnaire compensates to a certain extent for the lack of controlled sampling in the overall research design, which in the very unstable study setting was impossible to implement. The health volunteers were trained in interview techniques by the medical staff and were assessed by a medical translator. The questionnaire responses were assessed by a medical practitioner.

Two groups were identified, each being the parent(s) of 200 children under 12 years, consecutively admitted to the paediatric ward supported by MSF. The first, pre-intervention group (Group 1) was interviewed by trained health volunteers using the questionnaire, between 5 April and 5 June 1999. The second post-intervention group (Group 2) was interviewed using the same procedure and questionnaire, between 25 October and 30 November 1999. The post-intervention group was subdivided into those who had not seen the malaria booklet (Group 2*a*) and those who had (Group 2*b*). All the interviews were conducted on admission to the paediatric unit, this normally being prior to any review by a medical doctor, but after brief consultation with a medical officer. Excluded from the study were the parents of a child who had been re-admitted, and parents of a sibling of a child who had been admitted during the study period.

Data were analysed using the statistical software package, SPSS for Windows V9. Differences in proportions of parents giving a correct answer to each item in the questionnaire were tested by the χ^2 test. The total number of correct answers per parent was not distributed normally, so a non-parametric test, Mann–Whitney U, was used to test for significant differences between the pre- and post-intervention groups when these were compared.

Results

Combining the responses to all 21 questions, without differentiating between those referring to information contained within the booklet, demonstrated a statistically significant decrease in overall knowledge over the study period in the group who had not seen the booklet (Group 2*a*), while in those who had (Group 2*b*) overall knowledge levels remained the same, as compared to Group 1 (Tables 1 and 2).

There was a marked improvement in knowledge levels between the pre- and post-intervention groups in those areas specifically addressed by the booklet (Tables 1 and 3). These differences were statistically significant.

For the 10-item set related to information in the booklet, the two post-intervention groups had significantly higher ranked scores than the pre-intervention group (see Table 3). This increase in scores was greater for Group 2*b* whose members had seen the booklet. For the 11-item set not related to information in the booklet, there was a significant decrease in score ranks after the intervention (see Table 3). No significant differences were found when the number of correct answers was compared between the two post-intervention groups (2*a* and 2*b*) alone.

There were highly significant ($P<0.001$) increases in correct answers to questions about the risk to pregnant women, i.e. about using bed-nets to reduce the chance of contracting malaria, taking a repeat dose of drugs after vomiting, and of mosquitoes breeding in open wells. Increases were also significant ($P<0.05$) in terms of reported knowledge regarding the risk to children under 5 years, and the breeding of mosquitoes in drainage ditches. Because of the high baseline levels, there was little scope for significant improvement in knowledge about mosquitoes spreading malaria and chloroquine being an effective treatment for the disease. From a very low baseline level, there was very little change in reported knowledge about whether a blood test is necessary before treatment. For one of the questions relating to information within the booklet, concerning the prevalence of drug-resistant malaria, the proportion of correct answers actually significantly decreased post-intervention.

Discussion

Given the impact of malaria in this area, and the relatively low cost of the intervention, provision of the booklet appears to have been a cost-effective health education strategy. Significantly, the effect of the booklet was apparently greater than its readership, suggesting that its contents were discussed widely, although such an assumption cannot be confirmed by our study.

The deterioration in the knowledge base observed in the control questions is reflected in the decrease in overall knowledge during the study period amongst those who had not seen the booklet and negates the improvement in knowledge in those areas addressed by the booklet in those that had seen it. The reasons for this decrease in knowledge are obviously complex, and cannot be clearly identified from the study. The study groups were similar in most respects. Importantly, there were no significant population shifts during the study and no obvious sources of incorrect malaria information. There was, however, a marked and increasing air of uncertainty within the region during the study. The front line in the Wanni area changed, coming close to the locality of the hospital at times, and the military balance of the conflict changed dramatically on several occasions. This, and the resulting increase in isolation from medical services, may have led to a loss of faith in standard health related teachings, including those concerning malaria.

The timing of the individual interviews were the same in all groups, with minimal contact between healthcare workers and parents up to that point. A finger prick blood sample would have been taken in most cases to aid diagnosis, and this may have influenced parental responses regarding the necessity for a blood test, with

uniformly incorrect responses to the related question as a result.

The fact that there were highly significant improvements, from a poor initial knowledge base, on issues regarding malaria risk groups and the use of bed nets has implications for future interventions. These could include targeting of bed nets to these high-risk groups, with effective education prior to such approaches potentially increasing acceptability. The question regarding drug resistance showed an adverse outcome against the general trend. Whilst the incidence of resistance is not a significant problem in Sri Lanka[6], there has been an increase in reports of chloroquine resistance by local Medical Officers, which may have influenced public perception.

Printed educational materials have been shown to be an effective way of supporting physician advice[7], but the information should be understandable, and culturally sensitive to, the target population. We consider our strategy to have been a success, in the absence of other medical advice and in a very unstable setting. Several reasons may have contributed to this. First, despite a high literacy rate (91.2%)[9], written materials are scarce in Wanni, giving the product an interest value. Secondly, particular care was taken to ensure that the language was sensitive and easily accessible. By making over half of the pages non-health pages (i.e. calendar and address book), the perceived usefulness of the booklet was increased. Finally, the attempt to keep the booklet culturally appropriate with recent colour pictures and diagrams must surely have helped its acceptance. Conflicts, with their associated population movements and disruption of health and social services, increase the morbidity of a population. Communicable diseases contribute to this morbidty[10,11]. The possibilities for health education in such settings are generally extremely limited, but not impossible. We have shown that appropriate educational materials can be helpful in terms of public health management.

Acknowledgements

We thank in particular the health volunteers in Mallavi Hospital Paediatric Unit – Pathma, Sasi, Priramila, Sukitha, Ranjini, Jerarani – who worked and continue to work in most trying circumstances. Nathan Ford of MSF has also provided invaluable help and advice.

The study was funded by Médecins Sans Frontières and European Commission Humanitarian Office (ECHO).

References

1 Médecins Sans Frontières. *Nutritional Survey Report – Puthukkudiyiruppu and Mullaitivu District Sri Lanka.* Colombo: MSF, 1999
2 Ministry of Health Sri Lanka. *Annual Health Bulletin.* Colombo: MoH Sri Lanka, 1997
3 Ministry of Health Sri Lanka. *Annual Health Bulletin.* Colombo: MoH Sri Lanka, 1998
4 *Mullaitivu and Kilinochchi. Government Agents Monthly Report.* Colombo: MoH Sri Lanka, 1999
5 Cook Gordon C, ed. *Manson's Tropical Diseases*, 20th edn. London: Saunders, 1996
6 *British National Formulary*, Issue 37, London: BMJ Books, 1999
7 Kreuter MW, Chheda SG, Bull FC. How does physician advice influence patient behaviour? Evidence for a priming effect. *Arch Family Med* 2000;**9**:426–33
8 Mohrmann CC, Coleman EA, Coon SK, *et al.* Analysis of printed breast cancer information for African American women. *J Cancer Educ* 2000;**15**:23–7
9 Statistical Division of United Nations Secretariat. *Statistical Yearbook 1996.* New York: UN, 1998
10 Tool MJ, Waldman RJ. Prevention of excess mortality in refugee and displaced populations in developing countries. *JAMA* 1990;**262**:3296–302
11 Tool MJ, Waldman RJ. Refugees and displaced persons. War, hunger and public health. *JAMA* 1993;**270**:600–5

Abdominal tuberculosis adenitis in HIV-infected patients: is ultrasound diagnosis appropriate?

Giovanni Landoni MD
Barbara Nattabi MD Cyprian Opira MD
Paolo Francesconi MD

St Mary's Hospital, Lacor

Correspondence to: Paolo Francesconi, Via Pieve a Celle 29, 51030 Pontelungo, Pistoia, Italy
E-mail: paolo.francesconi@tin.it

TROPICAL DOCTOR, 2002, **32**, 97–98

In developing countries, the epidemic of HIV infections has dramatically increased the number of tuberculosis (TB) cases with an higher proportion of extrapulmonary presentations, including intra-abdominal TB lymphadenopathy[1].

We hereby report on 17 consecutive patients, admitted to St Mary's Hospital, northern Uganda, during April and May 2000, with enlarged lymph nodes around the great abdominal vessels detected at ultrasound. All 17 were adults (19 to 51 years), seven women and 10 men, all belonging to Nilo-Hamitic tribes. They all reported to the hospital complaining of systemic symptoms (weakness, fever, weight loss) and abdominal symptoms (abdominal pain or discomfort and irregular evacuation). Only one had a productive cough suggestive of pulmonary TB and none had previously been treated for TB.

At abdominal ultrasound, all 17 patients showed enlarged lymph nodes around the great vessels, eight also round the portal vein and one also around the femoral vessels. The maximum diameter of the biggest lymph node detected at the first examination varied from 2.3 to 4.4 cm (median 3.1 cm). No ascitis or other abnormal finding was reported. Only one patient was in good general condition and underwent a successful antibiotic trial with prompt remission. The remaining 16 underwent an ultrasound guided aspiration of one lymph node around the great abdominal vessels, the procedure being successful in 11 patients. Remarkably, all the 11 aspirated lymph nodes were found to be positive at the Ziehl–Neelsen stain. All 16 were started on standard TB treatment.

All 16 were also examined for acid-fast bacillus (AFB) in the sputum, chest X-ray, erythrocyte sedimentation rate (ESR), whole blood cell count (WBC) with formula and