

Middle Articles

Malnutrition in the Field. Nigerian Civil War 1968-9

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British Medical Journal, 1969, 2, 436-438

Summary: A short-term, large-scale medical and feeding programme has been provided for a population of 150,000 in the bush area near Udi in eastern Nigeria (Biafra). By January 1969 8,000 patients were receiving medical treatment each week for varying degrees of protein malnutrition (including kwashiorkor), vitamin deficiency, and dehydration; while 100,000 received weekly rations of a protein-supplemented diet. Close co-operation between the medical team—which consisted of one doctor, four nurses, and two relief workers—and the local Ibo people contributed to the success of the relief programme.

Introduction

In July 1968 medical teams were assembled by the Save the Children Fund for work in Nigeria to treat the severe starvation which was a result of the civil war. I was appointed medical officer and leader of one team, which consisted of four nurses and two relief workers. Our objective was to combine an acute medical and relief programme for these starving people. In August we arrived in Udi, which is in the Eastern State, 22 miles (35 km.) west of Enugu. Our area consisted of Udi and its surrounding seven villages. When we first started in Udi 43% of the patients, mainly old men and children, were suffering from the effects of protein calorie malnutrition.

In this area the prewar population was estimated to be around 150,000. As a result of the events in the north of Nigeria in 1966 many Ibos returned to their family homes, some for the first time in 20 years. These families, usually headed by a skilled worker, returned to live in the Eastern Region. With the advancement of the Federal Forces into Biafra the population fled to the bush. One such place near Udi was known as the Caves. Situated deep in the valley, the Caves were immensely hot in the dry season, and the little crops that were available belonged to the indigenous population. People crowded together, sometimes 100 living in a room of 15 by 15 ft. (4.5 by 4.5 m.). This resulted in many dying from the effects of poor sanitation, excessive heat, disease, and malnutrition. When the war front moved further south and the medical team came to the area, the population came out of the bush and returned to their homes. While they were in the bush their homes had been abandoned and their crops had not been cultivated.

Method

In Udi was an abandoned health centre. This was converted into two outpatient departments, three wards containing a total of 25 beds, an operating-room, and a malnutrition outpatient clinic. In the bush we set up mobile clinics in schools, houses, and maternity homes. We employed 120 Ibos to manage the medical and feeding programme. Our medical supplies came

from the International Red Cross depot in Lagos, and our food supplies came direct from Enugu. We were never short of either of these facilities, and transported food in three five-ton Bedford lorries and three Land Rovers.

At the clinic the patients were seated in the shade in long lines. They were selected and given coloured cards for their admission to the various departments: a blue card for the doctor's outpatient clinic, a green card for the nurses' clinic, a white card for the malnutrition outpatient clinic, and a red card for the wound-dressings and minor-operations room. In the clinic the prescriber wrote on a stiff coloured card, as used at the Ilesha Hospital, and this was retained by the patient. The diagnosis and treatment were written on these cards in an abbreviated code form.

Malnutrition and Dehydration

The term "kwashiorkor" was used in children, and "adult protein calorie malnutrition" in adults. These patients were graded into three groups for ease of treatment. They were suffering from the combined effects of protein calorie deficiency and dehydration resultant from diarrhoea.

Grade 1 (Mild).—Hair changes (loss of colour, increase in length, thin texture). Apathy. Oedema (mainly ankle). Skin breakdown. Muscle wasting. Anaemia.

Grade 2 (Moderate).—Anorexia. Diarrhoea. Secondary infection.

Grade 3 (Severe).—Lethargia. Dehydration (dry tongue, sunken fontanelles). Peripheral circulatory collapse (observed on cut-down before intravenous infusion).

Grade 1 patients were sent straight to the malnutrition outpatient clinic. This clinic consisted of three rooms, in one of which local food was prepared by the Nigerians. The patients were then instructed how to add dried skimmed milk to the local food. Each patient received three dessertspoons of dried skimmed milk three times a day, which amounted to 43 g. of protein. This clinic also had the important function of assessing the condition of the patients to the extent of their anorexia or diarrhoea.

Grade 2 patients were sent to the ward. If the anorexia was not severe, oral feeding was carried out by the Ibo nurse. If the anorexia was severe, nasogastric feeding by means of a polyethylene tube was instituted by continuous drip and consisted of:

		Rounded Dessertspoonfuls	
Dried skimmed milk	...	3	= 57 ml. (35 g.)
Casilan	...	8	= 190 ml. (35 g.)
Sugar	...	2	= 42 ml. (35 g.)
Oil	...	9	= 77 ml. (70 g.)
To make 1,100 ml. (M.R.C. Uganda, 1966)			

Grade 3 patients were sent to the ward for rehydration. Half-strength Darrow's solution was used for children and full-strength for adults. It was administered by intraperitoneal and intravenous infusion, the latter by cut-down in the severely

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collapsed patient. After rehydration nasogastric feeding was maintained until the patient could take food by mouth. In turn the oral feeding was continued until the patient was able to eat local food supplemented by dried skimmed milk.

Additional Therapy

All grades of malnutrition were treated with folic acid, vitamin B supplements, chloroquine, and anthelmintics. Iron was given in the form of iron dextran (Imferon) and ferrous sulphate to patients with anaemia who did not respond to folic acid and protein. Measles vaccine was given to 173 children with kwashiorkor over the age of 6 months. All grade 2 and 3 patients were treated with a five-day course of penicillin. Grade 3 patients were given 50% glucose intravenously, and hydrocortisone was used on adults. Patients with hypothermia—that is, with temperatures below 96° F. (35.6° C.)—recorded by means of low-reading thermometers were rewarmed by placing the child into bed with the mother or by adding extra blankets. Heart failure was treated with digoxin, aminophylline, and frusemide.

Feeding

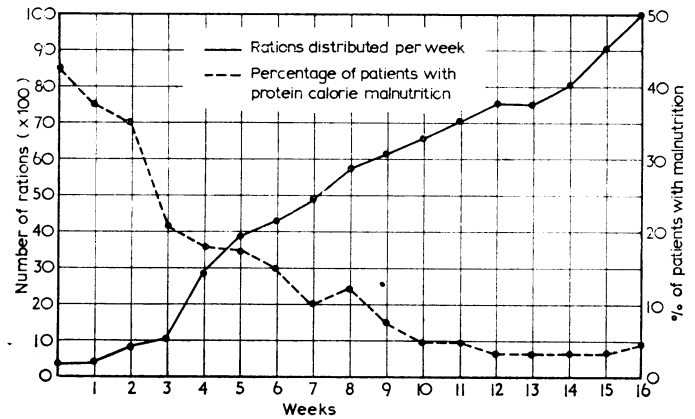
Feeding was carried out by two non-medical European relief workers, and was run separately from the medical programme. They employed over 60 Ibo helpers, from whom three teams were selected. Each feeding team was led by an Ibo and consisted of four team members; they distributed food to 18 villages a week. The distribution point was at the biggest village of a group, so that each village had, for example, 10 or so smaller communities. The population in all would be around 5,000. The village had a chief elected by the elders; the communities also elected a council chief. On feeding days, which occurred regularly each week, the council chief led his community of about 500 through a feeding distribution point. There would be about five distribution points at each feeding. In one village group every man, woman, and child received a ration each week. On one day three villages were fed—that is, about 15,000 people were fed each day. In a week this amounted to 90,000 people who were fed.

Each week every person received 2 lb. (900 g.) of beans, 8 oz. (227 g.) of dried skimmed milk, and, to adults, 5 oz. (142 g.) of salt. This is a protein-supplemented diet containing 320 g. of protein. In this area there was a supply of carbohydrates. There were yams and cassava, containing 2% and 1% protein respectively. Fruits as a source of vitamin C were also available. Groundnuts were scarce, and other sources of vegetable and animal protein were not easily obtainable.

Results

As the method of organization improved so the number of patients treated per week increased. In Federal Nigeria there were 22 medical relief teams feeding 1,000,000 and treating 35,000 people. Because of the co-operation of the local population and our distance of 10 miles (16 km.) from the front lines of the war, by January 1969 we were treating 8,000 patients per week and feeding 100,000 people (see Graph).

Measles.—There was no measles epidemic in the area, but measles vaccine was given to children with kwashiorkor. It was felt that measles would prove fatal to the already debilitated child. These cases were kept under observation in the ward and in the outpatient department while being treated for kwashiorkor, and no serious complication occurred from the vaccine.



Graph to show the correlation between the increase in feeding and the decrease in protein-calorie malnutrition expressed in percentages.

Vitamin-B₁ Deficiency.—Many adults were found to have hypothermia, generalized oedema, aprotinuria, cardiomegaly, hydrothorax, and ascites. That this fluid was a transudate was confirmed in 12 consecutive patients who underwent a diagnostic paracentesis. In the outpatient clinic there were a number of adults, particularly women and old people, who showed an ascending bilateral neuritis, and this was thought to be due to thiamine deficiency. They all responded to therapeutic doses of vitamin B₁.

Hypothermia.—Hypothermia was confirmed in the majority of patients who were admitted to the ward, showing that temperatures below 96° F. (35.6° C.) were common in severe cases of kwashiorkor and adult protein-calorie malnutrition.

Recovery.—Children recovered from grade 3 to grade 1 in about six weeks. It took about three months for a grade 3 patient to become a healthy smiling child again. It was found that by using intraperitoneal infusion routinely on all grade 3 and severe grade 2 patients the speed of recovery and the capacity to take food by mouth was much increased. Adults who responded to protein therapy took much longer to improve. After kwashiorkor the development of long eyelashes was noted, as was the presence of muscle and joint pain during the recovery stage.

Complications

Respiratory Tract Infection.—Both bronchopneumonia and lobar pneumonia responded well to penicillin or tetracycline. A clinical diagnosis of tuberculosis was made on haemoptysis, lymphadenopathy, intractable cough, and wasting. It appeared to be the most common infection preventing the recovery from adult protein-calorie malnutrition and kwashiorkor, and was treated with streptomycin and isoniazid.

Tropical Ulcers.—These responded well to local excision and the application of penicillin powder. Folic acid and protein were given by mouth, and plaster-of-Paris was used effectively as a dressing.

Discussion

In this area there was a lack of protein, a relative deficiency of vitamin B, but a fair amount of carbohydrate. In the bush, where the people had lived for nearly a year, all food was in short supply. The social structure of the family meant that priority of food went first to the father, next to the children, then to the mother, and lastly to the old people.

The medical and relief programme was based on the feeding programme. The knowledge that everyone was receiving a protein-supplemented diet each week enabled us to concentrate on the medical conditions. We saw and treated large numbers by utilizing local help to the full. The Ibos were instructed

in medical treatment and were given as much responsibility as possible. Unfortunately, there were no laboratory facilities and diagnosis was purely clinical.

At first adult malnutrition was treated in the same manner as kwashiorkor. A large proportion of these adults, however, did not improve with protein therapy alone. This group presented in a similar manner to the adult protein calorie malnutrition, but had pronounced ascites, were not anaemic, had large hearts, and often had a peripheral neuritis. These patients responded rapidly to vitamin-B₁ therapy. The diagnosis of apparent thiamine deficiency in the area was confined to adults and was not seen in children. The diagnosis was on a clinical basis and was confirmed only by the response of the patient to therapeutic doses of thiamine (Bicknell and Prescott, 1946; Williams, 1961).

In this area no case of cancrum oris was seen in the population suffering from malnutrition, though this condition is common in most famine areas (Mayer, 1965). Tempest (1966) found that 70% of the cases with cancrum oris he studied in Nigeria followed directly on an attack of measles. The absence of cancrum oris in Udi may well be related to the few cases of measles seen there.

Patients were rehydrated by intraperitoneal infusion. By this method fluid could be given quickly and easily by a nurse. The fluid was absorbed slowly and therefore unlikely to overload the circulation. This form of treatment was carried out on 200 patients with adult protein calorie malnutrition and kwashiorkor; there was no sepsis, no haemorrhage, and no abdominal organ was punctured, confirming Jelliffe's (1966) report on a larger series. When we first treated adult protein calorie malnutrition and kwashiorkor we gave intravenous

Darrow's solution followed by nasogastric fluid to only the very severe cases in grade 3. It was found, however, that by giving Darrow's solution intraperitoneally to all grade 3 and the severer grade 2 patients they were able to take food by mouth in a matter of days, and it was often possible to bypass the nasogastric feeding stage. As a result of this method the mortality rate was reduced. Intraperitoneal infusion was found to be a very simple and effective method, particularly while working in the field (Jelliffe, 1966).

This was an acute medical feeding programme, which is nearly completed. The second stage of rehabilitation, including the planting of crops, sanitation, schools, and employment, is now starting.

I should like to express my thanks to Dr. David Morley, of the Institute of Child Health, for his helpful advice; to Dr. Andrew Gray, Miss Frances Gairdner, Miss Elizabeth Lamb, Miss Sally Goatcher, Mr. Leslie Maitland, Mr. Garry Sibson (administrator), Mr. Paul Hardcastle (relief worker), the Save the Children Fund Team IV; and to the Nigerian Staff at Udi, the Save the Children Fund, London.

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GENERAL PRACTICE OBSERVED

General Practitioner's View of the Home Nursing Service

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British Medical Journal, 1969, 2, 438-441

Summary; A postal questionnaire concerned with possible developments in the home nursing service was sent to a random sample of 500 principals in general practice in Scotland in late February 1967 and was completed by 444 (89%). Only 13% of the respondents had a district nursing sister attached to their practice organization, but 70% of the remainder wanted this. The most frequently expected benefit was that she could undertake procedures at present performed by the doctor. Half the respondents thought that at present the district nursing sister did not use her professional training and skills fully. Most general practitioners agreed that a State-enrolled nurse, working under supervision, could do some of the jobs now performed by the district nursing sister.

Introduction

The direct attachment of district nursing sisters to general practitioners is increasingly accepted as a means of improving the effectiveness of domiciliary nursing (Leiper, 1965-6; Warin,

1968). This report is concerned with the attitudes of a random sample of Scottish general practitioners towards this and other developments in home nursing that are at present being discussed.

Method

The study was conducted by means of a postal questionnaire, which contained three main areas of inquiry; firstly, about interest in a more formal attachment of district nursing sister to practices than is usual at present; secondly, about developments that doctors might like in the home nursing service; and, thirdly, about how far doctors would be willing to have activities that are at present undertaken by the district nurse performed by a less skilled person, such as a State-enrolled nurse.

The sample was randomly drawn from the current list of "doctors providing general medical services" of all the executive councils of Scotland, and represented about one in every five general practice principals throughout Scotland. The questionnaires were sent by post to members of the sample in late February 1967. Completed questionnaires were received from 444 (89%) of the 500 doctors who were approached.

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