plantation in this group and in fulminant hepatic failure are considered elsewhere.¹¹ Our current experience gives considerable hope for a greater use of liver grafting in these very severe types of liver failure. Transplantation for inborn errors of metabolism is also likely to increase. We have given transplants to patients with α_1 antitrypsin deficiency, galactosaemia, and one with Wilson's disease (case OL119), who was alive with normal copper metabolism two years after transplantation,¹² and in the present series two further cases of α_1 antitrypsin deficiency and one of primary hyperoxaluria (R W E Watts *et al*, unpublished observations) were treated in this way. Starzl *et al* are also performing liver transplant operations in a wide range of metabolic disorders, including recently a 6 year old with familial hypercholesterolaemia, in the hope that the grafting of a normal liver, as in our patient with hyperoxaluria, will correct the underlying metabolic disturbance.¹³

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Outside Europe

Drugs and the Third World

TESSA RICHARDS

Drugs in the Third World are handled in much the same way as other commodities. Traders who today deal in drugs (tomorrow it might be bananas) expect to make a good living, as do the wholesalers and retailers, and business practices may be less than scrupulous. Bureaucracy is unwieldy, conditions of storage poor. Drugs and vaccines sit in stores and custom houses in fridges that do not work, gently deteriorating until finally they reach an outlet. This outlet may be an untrained "compounder" of medicines who lacks the knowledge or skills to handle drugs appropriately. Drug pilferage and substitution is common and neither dealers nor patients may get what is promised on the glossy outside of a Western package. Drugs are in short supply, as are suitable packets and containers. Sterile preparations are dispensed in unsterile containers; many patients bring their own. Compliance with drug treatment is universally poor. These were just some of the problems that were outlined at a recent symposium (5 December) in London organised by the Association of Medical Advisors in the Pharmaceutical Industry.

The meeting was entitled The Pharmaceutical Industry and Third World Medicine—a global enough topic and, as the chairman Sir Kenneth Stuart from the Wellcome Trust pointed out, one which is underpinned by vast problems; compounded by the fact that there is no appropriate mechanism for cooperation between the Western based pharmaceutical industry and the developing countries. In his opening comments Sir Kenneth hoped that the meeting, which was attended by about 50 medical advisers to the pharmaceutical companies, would generate practical policies to

bridge the gap between the industry and the Third World. Few could doubt that the industry needs to adopt a new approach but it was perhaps overambitious to expect more of this meeting than a thorough airing of the problems and a sprinkling of good ideas—and in this respect expectations were amply fulfilled.

Professor P Thairu from the Commonwealth Secretariat dispensed with lip service to the Third World and presented a clear picture of near comprehensive chaos, which he said surrounds all aspects of the supply, distribution, storage, quality control, promotion, and dispensing of drugs. To make matters worse, developing countries are unable to forecast their pharmaceutical needs for, among other reasons, illness is unrecognised, misdiagnosed, and unrecorded. Traditional healers have not been slow to lace their remedies with Western medicines, said Dr J N Banerjee, who is chairman of the Commonwealth Pharmaceutical Association. This is particularly worrying since few of these healers have more than a passing acquaintance with pharmacology, and are ignorant of indications for treatment, dose schedules, and side effects. Thus mixtures of steroids, antibiotics, and hormones are dished out with little care in busy local markets, which serve the 70-80% of the total population which lives in rural communities. These people have access to only 20% of the country's drugs (the rest go to people living in the urban areas) and avidly spend money on medicines. Traditional healers promote and advertise their cures freely and, whether they get paid in cash or with two chickens, most are wealthy.

Long turning circles

From such a catalogue of problems clearly the Third World's pharmaceutical needs can never be solved by simply supplying the countries concerned with sufficient of the appropriate drugs. For, even if they were able to define "sufficient" and "appropriate" and were prepared to spend their limited supplies of foreign exchange on

drugs (as opposed to, say, guns or tanks), the whole health infrastructure on which the community depends is totally inadequate. This point was well illustrated by Mr R Levin, managing director of Rybar Laboratories, who was not above drawing a parallel between the plight of the Third World and of Britain in the wake of the recent restrictive diktat from the DHSS. He described how his company failed in its attempt to help a country in the Far East to eradicate gastrointestinal worm infestations. Levamisole had been made widely available at a fraction of its normal cost but, although some mission hospitals took up the offer, most patients remained untreated. Mr Levin attributed this neglect to a mixture of bureaucratic inefficiency, ignorance of the link between health and worm infestation, and a laissez faire attitude along the lines of, my grandfather had worms, my father had worms, and so have I . . . so what? Dr Thairu was not surprised, pointing out that most developing countries have turning circles of six years before a new drug or a new idea is taken up.

This anecdote served to illustrate another important point: pharmaceutical industries working in isolation are unlikely to have any impact on the Third World's drug problems. Whether the industry has any obligation to help the Third World was, rather surprisingly, not even debated. It appeared that most felt the obligation even if proposals on how to do it have yet to be made. It was a lone voice who posed what must be the central, if as yet unanswerable, question—how much will it cost? If the way forward was not immediately clear there was broad agreement on what industry should not be doing, with forthright condemnation of the promotion of expensive, inessential, brand name drugs and of the offloading of poor quality ones. Indeed, hackles remained firmly in place as such goings on were consigned to the province of unscrupulous industries operating in Eastern Europe and other dark continents.

Mr David Taylor, from the Association of British Pharmaceutical Industries, emphasised that health in the Third World is an important issue for the Western based pharmaceutical industry and that medicines—along with improved sanitation and clean water—can do much to improve it. But he warned the industry that it should not look to the Third World for financial rewards.

Developing countries are very dependent on imported drugs and yet Britain, which exports £1200 million of medicines each year, sends only 5% of its drugs to low income Third World countries. Those it does send get distributed among the rich and those with access to institutional health care schemes, leaving the remaining two thirds of the population without. Despite this, the average spending per head on drugs as a percentage of the gross national product is similar to that in the West. He suggested that one of the main problems is maldistribution, which could be tackled only by government intervention in the countries concerned. Thus a more workable health care infrastructure is likely to solve more problems than any amount of external aid from charities, or the World Health Organisation. The pharmaceutical industry cannot solve the health problems of the Third World, he said, but it can hinder or help a bit. His main suggestion was that industry should spend more money on the research and development of drugs to treat tropical disease. At present this attracts only 1-3% of the total budget. There is little hope that local manufacture of drugs is the solution because of the dearth of local technical and managerial skills needed to produce a steady flow of high quality products.

Prevention or cure?

Turning from the general to the specific, Dr A D Bryceson, a physician from the Hospital for Tropical Diseases, drew attention to the major causes of mortality and morbidity in the Third World. Many of these diseases—for example, respiratory tract infections, measles (especially), gastrointestinal infections, malaria, and malnutrition—are, or should be, preventable. Nevertheless, with the notable exception of smallpox, preventive programmes have not been very successful. Cure should not be undervalued as a method of controlling disease, and the pharmaceutical industry could help enormously if it was to concentrate its energies on developing effective single shot cures for diseases such as malaria, onchocerciasis,

and hydatid disease. Such treatment, which could be supervised easily, would overcome problems of compliance.

Focusing on malaria, Dr D B A Hutchinson (Wellcome Research) outlined the worrying increase in multiple drug resistance. He identified mafaquine as one of the most promising new drugs and, perhaps to provoke the assembled experts from industry, commented on the use of qinghaosu. This is derived from the herb qinghao, and is widely used in China, apparently with great success, to treat malaria—and has been since 168 BC. Qinghaosu is not, he admitted, likely to solve the malaria problem, and he urged industry to look for a single dose preparation effective against both vivax and falciparum malaria. No easy task, for research on antimalarials is expensive and difficult to carry out; furthermore, the life cycle of the parasite is still not fully understood.

No talk on drugs and the Third World would be complete without mention of the WHO action programme on drugs, and the essential drug list. Mr Gerald Moore said that the pharmaceutical industry should not regard the activities of the WHO as a threat to its existence, maintaining that several industries have adapted to market needs and are concentrating on producing low cost essential drugs. Others have not and expensive inessential brand names are still being marketed in the Third World. Dr Peter Williams from the Wellcome Trust (who was the first to suggest that the pharmaceutical industry needs to do more than take drugs to the Third World) said that what developing countries lack is the right sort of facilities and the right sort of people. Clearly this makes mutually satisfactory interaction difficult or impossible and he suggested that industry could send out trained personnel who have a special grounding in tropical medicine to help and advise at both the technical and managerial level. Many subsequent speakers agreed with his approach but emphasised that such aid must go hand in hand with a commitment from the governments concerned to make changes in their health care infrastructure.

Just as the chairman Dr Denis Burley was drawing the discussion session to a close Dr N Davidson, a physician from Edinburgh, rushed to the front, pen in hand, and in two minutes told the assembled medical advisers exactly what they and the Third World should be doing. Much of what he had to say had been heard before: concentrate on essential low cost generics, improve the relations with the local industries and health care workers, and offer more information and technical help. But he put his finger on a major stumbling block when he said—appropos the British pharmaceutical industry—"I don't get the idea that you have a proper forum, and you need one." No one was going to argue with that and Dr Burley spoke for all when he said that more discussions were needed within the industry so that it could act together for the common good. A difficult task for an industry noted for adversarial rather than brotherly interaction.

So the day concluded with a plea for further dialogue; between members of the industry and with representatives from the Third World, and for once I was left with the impression that more talks were likely to spawn worthwhile ideas. As an observer from European industry later commented to me informally, the British pharmaceutical industry, unlike its colleagues in America or Europe, does have the potential to act together. And by a concerted approach it could make a worthwhile contribution to Third World health.

What advice should be given to a woman in early pregnancy whose job requires her to lift boxes regularly?

There is no hard and fast advice to women in early pregnancy undertaking heavy manual labour: it should depend on any relevant obstetric history or at risk factors. For instance, women with a history of recurrent spontaneous abortion are best advised against continuing this type of occupation. In general, however, I would suggest that patients inform their employers of their pregnancy and request that they be given "light" duties at work. I find that most employers are "helpful" in these circumstances.—G J LEWIS, consultant gynaecologist/obstetrician, Stourbridge.