

## *Medicine and Global Survival*

*A new journal for the world's most pressing problems*

"Human kind," said T S Eliot, "cannot bear very much reality." Most of us are well aware that 12 million children die of poverty each year, that the gap between the world's rich and poor is widening, and that overpopulation, overconsumption of energy, and environmental destruction threaten the earth's survival—and yet most of us cannot think about these facts often or for long. But if our attention is constantly diverted these problems will never be solved. To contribute to expanding knowledge about the major issues that threaten our survival and to help find solutions the BMJ Publishing Group is launching a new journal—*Medicine and Global Survival*—next March.

In the past few years we have come to understand much better how closely connected are overpopulation, poverty, militarism, and development. We understand now that these problems will be solved only by strategies that consider them all together. If population growth is not controlled then poverty will never be reversed, rapidly increasing energy consumption and environmental degradation will continue, and leaders will still invest heavily in arms in order to fight for resources or defend their privileges. Poverty makes it difficult for people to limit population growth and leads them to destroy their environments in a desperate attempt to feed their families. Meanwhile, their leaders create armies for defence and for grabbing resources from neighbours, and expenditure on arms diverts resources that might be used for development. Solving these problems is like solving a Rubik cube.

Overpopulation has long been recognised as a problem, but it does not attract as much attention as it did 15 years ago. This is partly because the rate of population growth has slowed and people mistakenly think that the problem is over. But world population is still growing exponentially and will increase from 5.5 billion to at least 8 billion—and more probably to 9 billion—by 2025. We must continue to focus on overpopulation, but the growth in energy consumption is even faster: world energy consumption grew from 1 terawatt in 1890 through 3.3 terawatts in 1950 to 13.7 terawatts in 1990.<sup>1</sup> Poor people use less than a tenth of the energy of rich people, and an increase in standard of living combined with population growth may mean a 14-fold increase in energy consumption by 2050.<sup>1</sup> Yet fossil fuel reserves are being rapidly consumed even at current levels of consumption.<sup>2</sup> They must not be wasted any longer because they are a valuable source of chemicals that will never come again and because burning them adds to pollution and global warming.

It should be possible to get enough energy from sun, wind, tide, and wave, but much ingenuity and research will be needed.<sup>2</sup>

Overpopulation (mostly in the poor world) and overconsumption of energy (mostly in the rich world) both contribute to environmental destruction, and we are beginning to reach the population that the earth can sustain.<sup>3</sup> The climatic change caused by the accumulation of greenhouse gases in the atmosphere may, for example, lead to people being displaced by flooding of coastal plains, increased deaths related to heatwaves and natural disasters like hurricanes and cyclones, increased distribution of diseases borne by vectors, food shortages because of severe agricultural disruption, and destruction of natural habitats. It is hard to know exactly what will happen with these major environmental changes, but epidemiologists are beginning to argue that these problems should rise to the top of their agenda.<sup>3,4</sup>

The world's richest 20% are 150 times richer than the world's poorest 20%, yet the difference is growing.<sup>5</sup> The number of the absolute poor in Africa has increased by about two thirds in the past 15 years, and roughly two thirds of the population of sub-Saharan Africa lives in absolute poverty; and so do about 1.25 billion people around the globe. One of the factors making poverty worse is the flow of funds from the developing to the developed world because of the large debt built up in the developing world.<sup>5</sup> Aid from the rich to the poor world is now about £28 billion, but interest on debt flowing the other way is £34.5 billion; Africa spends four times as much on servicing its debt as on providing health services to its 600 million people.<sup>5</sup>

One cause of the debt is the large amount spent on arms, and military expenditure in developing countries each year is equivalent to roughly 200 million person years of income. Developing countries spend about \$38 on arms for each person and only \$12 on health; the annual budget of the World Health Organisation amounts to three hours of world expenditure on arms.

The world is still racked with war, but those in the rich world imagine that the risk of the world being destroyed by nuclear war has receded. They are wrong. An editorial in the *Economist* last June began<sup>6</sup>:

Did you stop worrying about nuclear obliteration when the cold war ended? Start again. To make an atom bomb, a terrorist or a would-be proliferator would need to get hold of only 5 kg of weapon-grade plutonium or 15 kg of weapon-grade uranium, less than you would need to fill a fruitbowl. At present the world probably contains about 250 tonnes of this sort of

plutonium and 1500 tonnes of the uranium. To lose one bomb's worth from this stock is the equivalent of losing a single word from three copies of the *Economist*. . . . And more than half of [the world's stock of nuclear explosive material] is inside the chaotic relic of the former Soviet Union.

*Medicine and Global Survival* wants to receive original research, analysis, and informed scientific and medical opinion on all of these interconnected issues. The journal is not entirely new: it is a development from *The PSR [Physicians for Social Responsibility] Quarterly*, a journal that has been published since 1991. Physicians for Social Responsibility is the United States affiliate of International Physicians for the Prevention of Nuclear War (IPPNW), a global federation of national organisations of doctors dedicated to safeguarding health through the prevention of war. IPPNW began in 1980 and won the Nobel peace prize in 1985. Since the threat of a worldwide nuclear war is perceived to have receded the organisations that make up IPPNW have been discussing refocusing their mission to respond to all of the interlinked issues that pose a threat to human survival.

*Medicine and Global Survival*, which is endorsed as a journal of IPPNW, is wholly owned by the BMJ Publishing Group; the journal has always had an international perspective, but the new journal will consciously become still more

international—with associate editors and an editorial board from many countries. Further information about the journal and a call for papers appear in the advertisement facing p 739 (clinical research), p 734 (general practice), and p 746 (other editions). We invite doctors and others concerned with these central problems of our age to contribute to this journal and so to expand our understanding and resolution of the problems that might otherwise make life unbearable or impossible for our children and grandchildren. We must not be overwhelmed. It is better to light a candle than to curse the darkness.

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## Retinopathy of prematurity

### *Increasing as survival of extremely premature babies increases; cryotherapy improves outcome*

Retinopathy of prematurity (previously called retrolental fibroplasia) has been a known and feared cause of visual impairment in children born prematurely since 1942.<sup>1</sup> In the early '50s oxygen was identified as an aetiological factor, and the condition's incidence fell substantially when lower oxygen concentrations were given to premature babies. But better neonatal care has increased the survival of extremely immature children during the past few decades, and consequently the incidence of retinopathy of prematurity is again rising. Recent epidemiological studies report a total incidence of the condition of 30-50% (with severe retinopathy in up to 20%) in children with a birth weight of 1700 g or less; the risk is even higher in the most immature children.<sup>2-4</sup>

Retinopathy of prematurity is a disease of immature retinal vessels. The vascularisation of the inner retina is not completed in children born prematurely. Owing to a vascular retinal lesion, normal development may become interrupted, and pathological changes such as vascular shunts, fibrovascular proliferations, and, in the most advanced stages, tractional retinal detachment will occur. Milder stages of the condition may regress spontaneously and do not affect the normal development of the eye. Impaired vision; large refractive errors, particularly myopia; strabismus; and even blindness often follow more severe forms of the condition.

The pathogenesis of the retinopathy is not yet clearly understood. Excessive doses of and prolonged exposure to oxygen still have a role in the disease. Retinopathy of prematurity can, however, develop even without supplementary oxygen, and children who have received high doses of oxygen do not necessarily develop the condition. This suggests the existence of other factors in the pathogenesis of the disease.<sup>5</sup>

Retinopathy of prematurity is thought to be a multifactorial condition that mainly affects the most immature and sick children.<sup>6</sup> Numerous risk factors, sometimes coexisting, have been documented, including early gestational age,

low birth weight, hyperoxia, hypoxia, hypercarbia, hypocarbia, acidosis, alkalosis, apnoea, infection, intraventricular haemorrhage, Vitamin E deficiency, bright light, blood transfusions, administration of xanthine, maternal bleeding, and administration of  $\beta$  blockers in late pregnancy.<sup>7-8</sup> Flynn has recently suggested a genetic basis for the condition.<sup>9</sup> Further research is needed on the pathogenesis of retinopathy of prematurity and, perhaps most importantly, on the aetiology and possible prevention of premature birth.

Continuous monitoring and control of the administration of oxygen have not been shown to prevent the retinopathy; a safe concentration of arterial oxygen has not been defined.<sup>5</sup> Although antioxidants have been used prophylactically for several decades, they cannot be recommended for routine use. The role of bright light in the aetiology and prevention of the condition is still debated—no randomised trial evaluating the effect of exposure to light has yet been performed.<sup>10</sup> Prophylactic treatment with surfactant in prematurely born children with the respiratory distress syndrome is routine today, but a recently published randomised study showed no change in the incidence of retinopathy.<sup>11</sup> Interestingly, benefits have been reported for supplementation with inositol, which may control the surfactant phospholipids in immature lungs.<sup>12</sup> Finally, dexamethasone used to prevent bronchopulmonary dysplasia in children born prematurely might be considered in the prophylaxis of retinopathy, but once again no randomised controlled trial has been performed.<sup>13</sup>

Since the mid-1970s cryotherapy, applied transsclerally to the peripheral, ischaemic part of the retina, has been used to treat advanced stages of the condition. It is thought to arrest the retinopathy by reducing retinal ischaemia and the release of an angiogenic factor that may act as a trigger for the disease process. Cryosurgery did not, however, become an established mode of treatment for advanced retinopathy until an American multicentre study in 1988 showed that it halved the chance of an unfavourable retinal outcome.<sup>14</sup>