

Population growth and global warming

Roger V. SHORT

Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne, Level 4, 766 Elizabeth Street, Melbourne 3010, Victoria, Australia.

Correspondence at: E-mail: r.short@unimelb.edu.au

Abstract

When I was born in 1930, the human population of the world was a mere 2 billion. Today, it has already reached 6.8 billion, and is projected to reach 9.1 billion by 2050. That is unsustainable.

It is slowly beginning to dawn on us that Global Warming is the result of increasing human CO₂ emissions, and the more people there are in the world, the worse it will become. Ultimately, it is the sky that will prove to be the limit to our numbers. The developed countries of the world are the most affluent, and also the most effluent, so we must lead by example and contain our own population growth and per capita emissions. We also have a big debt to repay to former colonial territories in Africa, Asia and South America, who desperately need our help to contain their excessive rates of population growth. Belgian and Dutch obstetricians and gynaecologists can play a critical role in this endeavour. After all, we already have a pill that will stop global warming – the oral contraceptive pill.

My qualifications come from a memorable few weeks spent as a Visiting Professor at the University of Ghent in 1972, where I saw at first hand the Fair Face of Flanders, and gained a deep respect for the Flemish way of life. I had to deliver a series of public lectures, and I remember making reference the Club of Rome's recently published "Limits to Growth". The message was so simple; fossil fuels are non-renewable resources, and at the rate we are using them, they will soon be exhausted. Why had it never occurred to me? So gradually I began to turn my mind to the even greater problem – are there too many of us?

I was about to leave the comfortable seclusion of 16 years in the University of Cambridge to take up a post as the Director of the Medical Research Council's new Unit of Reproductive Biology in Edinburgh. David Baird, my Deputy, and I had decided that one of our Terms of Reference would be to improve existing and develop new forms of contraception. So we needed a bright young medical graduate who would like to do a Ph.D. on this subject. When I met a tall, young Gold Medal medical graduate from Ghent after one of my lectures, I signed him up immediately to come to Edinburgh and work with us. So began the illustrious career of Paul van Look,

who subsequently, through dogged determination and intellectual honesty, raised the profile and credibility of the World Health Organization in the field of Human Reproduction.

In those early days, Ethics Committees had not been invented. When we informed the M.R.C. Head Office that we wanted to do research to improve the efficacy and acceptability of condoms, we were politely informed that it was not a suitable subject for study by the Medical Research Council! We also asked if it would be acceptable to see if chimpanzee spermatozoa could fertilize human oocytes in vitro, since we had access to both. We were informed, in writing, that "Interspecific fertilization" is permissible, but never "Intraspecific fertilization". Fortunately, we never took Head Office up on that bureaucratic blunder.

The birth of Louise Brown, the first test-tube baby, resulted in me being invited to preach the Sermon in St Giles Cathedral on "The Beginning of Life" – how could I refuse? I would be speaking from the very pulpit that John Knox had used. The Minister informed me that I must not speak for more than 5 minutes, so I spent most of the time reading from the first chapter of Genesis. It was a tricky situation for me to be in, as Bob Edwards and Patrick

Step toe were my close friends, but I was also the spokesperson for the M.R.C., whose official view was that in vitro fertilization and embryo transfer should never be attempted in humans until there had been extensive clinical trials in primates to prove safety and efficacy. Thankfully, those trials have never been done – the proper study of mankind is man.

In vitro fertilization and embryo transfer have made enormous strides since those early days, and are the bread-and-butter of ESHRE. At school, I had learned to sing by heart the words from Ecclesiasticus xlv.1 “Let us now praise famous men”. What impressed me most was the concluding stanza “And some there be which have no memorial, who are perished as though they have never been.” Was that referring to the infertile? In vitro fertilization, that noble (or Nobel?) discovery, has enabled millions of infertile couples to bear children, and is here to stay. But maybe we need to think of imposing some constraints on it in the future. Everybody must have been incensed by the recent account of an American woman who gave birth to octuplets as a result of IVF. If we are to call a halt to human population growth in future, then it should be incumbent on all IVF clinics never to produce more than two offspring per couple.

To talk of twinning in Flanders immediately raises the name of Robert Derom, and his amazing ongoing East Flanders Twins Study. It was Robert who inspired me to take up the study of twins, and persuaded me to visit Genk in 1998 on the occasion of the “Andrology in the Nineties meeting”. Robert was the first to show that the incidence of monozygotic twinning was more than doubled as a result of ovulation induction (Derom *et al.*, 1987), a finding that has repeatedly been confirmed. But what is the underlying mechanism? The iatrogenic induction of monozygotic twinning is something that should be avoided if at all possible, and one would hope that some of the IVF laboratories could investigate this question.

So how could we improve existing methods of contraception? One simple thought occurred to me – why menstruate? Therefore we set up a clinical trial of a Tri-cycle Pill – the oral contraceptive pill taken continuously for 3 months at a time, so that

you only had four menstrual periods a year. It proved to be extremely popular, and we published our results in the British Medical Journal (Loudon *et al.*, 1977). You can imagine our surprise when we discovered that Barr Laboratories in the United States had subsequently patented Seasonale, an almost identical formulation, to provide contraception with a reduced frequency of menstruation! Of course, they never cited our work as Prior Art in their patent, which would render it invalid if anybody chose to challenge it.

Every time I go to the Low Countries, I think about Global Warming. With the increased melting of the polar ice caps and the Himalayan-Tibetan glaciers, rising sea levels are a certainty in the years to come. How soon will you have to start strengthening your dykes? If we look at the latest UN Population Projections, we see that the world’s population is already 6.8 billion, and is expected to rise to about 9.1 billion by 2050. That is simply unsustainable. The only way of preventing it is by redoubling our efforts to deliver contraceptives to those who need them most, teenagers, and the women of the world. Here we have much to learn from the Belgians and the Dutch, since you have one of the lowest rates of teenage pregnancy and abortion in the developed world. How do you do it? Could you export that know-how to your former colonial territories in Africa, Asia and South America? They desperately need our help. And even here at home there is much to be done. For starters, oral contraceptives need to be available over-the-counter, not on prescription, and it would be great if the lead came from the medical profession.

If we could contain human population growth in the years to come, we could call a halt to global warming. And all it would take is a simple little pill, the oral contraceptive pill.

References

- Derom C, Vlietinck R, Derom R, Van den Berghe H, Thiery M. Increased monozygotic twinning rate after ovulation induction. *Lancet*. 1987;1(8544):1236-8.
- Loudon NB, Foxwell M, Potts DM, Guild AL, Short RV. Acceptability of an oral contraceptive that reduces the frequency of menstruation, the tri-cycle pill regimen. *Brit Med J*. 1977;2:187-90.