

THE ETHICS OF MEDICAL PROGRESS: IN-VITRO FERTILISATION — THE SINGAPORE EXPERIENCE

(Paper presented at the Silver Jubilee SMA
National Medical Convention 1985)

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SYNOPSIS

“Hi-tech babies” has been the theme of review articles in many news magazines such as the Times and Newsweek. Since the birth of Louise Brown in 1978, undue publicity has followed the clinical work in IVF. It is perhaps necessary for such highlighting as there are many ethical questions where science has left the ethics of society behind. Unfortunately, such high public profile of IVF has resulted in much public demand for IVF. Also, because of the success of the private venture of Steptoe and Edwards, whose work has interrupted by the withdrawal of NHS funds, many other groups joined in. This vicious cycle of public demand and private ventures result in IVF being offered as a first line procedure. Is this warranted in the light of the current success rate and the invasive nature of oocyte collection? Another development of private venture is “patenting” of reproductive techniques, especially “uterine lavage”; such patents are against medical ethics. All these concerns have resulted in ethical statements on IVF all over the world including the Royal College of Obstetricians, the Royal Society, the Medical Research Council, the Waller Committee from Melbourne, the Warnock Committee from UK, and the American Fertility Society. In Singapore recommendations from the Obstetrical and Gynaecological Society of Singapore and the Singapore Medical Association have been made to the Ministry of Health, which has initiated a committee enquiry into IVF. How does the patient feel? In 1981, before we set up an IVF and ER program in Singapore, we embarked on a questionnaire survey amongst 113 patients attending our subfertility clinic and 168 first year medical students as they just started on their undergraduate course. 73.5% of the subfertile patients and 78.0% of the students did not consider it ethically wrong in 1981. Of those who thought it ethically wrong, 43.3% of subfertile patients objected because of interference with natural methods of reproduction while 52.8% of students objected on religious grounds. Breakdown of ethical considerations according to

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religious beliefs showed no group obviously against IVF. The students who thought IVF ethically right in 1981 were asked whether it was ethically right to extend the procedure to research on human embryos. There were equal numbers of ethically right and wrong responses and there were no dominant religion or sex in either group. It has also been published in the local newspaper that "Muslim, Hindu, Buddhist and Sikh leaders have said they accepted the idea of test-tube conception to help childless couples in Singapore". However, the Roman Catholic Church in Singapore was against IVF.

Many questions raised, and few answered: "value dilemma". (Taviss, 1971).

"Public interest requires the public to take upon itself a certain measure of responsibility and burden for the risks which those who seek to benefit must incur on its behalf. While researchers have no ethical right to make their subjects martyrs for society, society has no right to make martyrs of the experimenters who do harm in spite of their best and most conscientious efforts."

Bernard Barker, 1967

INTRODUCTION

"Hi-tech babies" has been the theme of review articles in many news magazines such as the Times and Newsweek. Life international featured "Small miracles of love and science" in its November 1982 issue (1). Times on 10th September 1984 featured "Making babies. The new science of conception" (2). Newsweek also featured "Hi-tech babies" on 18th March 1985. Since the birth of Louise Brown on 25th July 1978, undue publicity has followed the clinical work in IVF. It is perhaps necessary for such highlighting as there are many ethical questions where science has left the ethics of society behind. Questions such as "when does life begin?", "is it ethical to freeze embryos?" and "have human embryos rights?" are still unanswered. For this Symposium, Professor Carl Wood will attempt to answer such questions. We have also attempted to answer them elsewhere (3). Taviss (1971) has said that this is a "value dilemma", with many questions and few answers.

HIGH PUBLIC PROFILE OF IVF

Unfortunately, such high public profile of IVF has resulted in an undesirable trend. The public media has vast responsibilities to society, and it is sad that its journalistic approach to "scoops" has resulted in sensationalism. Such stories give patients false sense of hope in some as well as the possibility of their life-stories in others. Hence, there is a high demand for IVF.

Another parallel development has been the establishment of private centres because of inadequate funding. IVF came about in an era when public funds were being cut because of global economic strains and world-wide recession. Also, because of the success of the private venture of Steptoe and Edwards, whose work was interrupted by the withdrawal of NHS funds, many other groups joined in. The initial capital in setting up an IVF laboratory is high, and to make a profit in this era, the turnover of patients must be high. Also, in order to attract patients to make a success in this "business", successes must be consistent. Hence, there is this vicious cycle of public demand and private ventures, and this has resulted in IVF being offered as a first line procedure. This results in higher success rates because of higher fecundity if treated earlier. It has been estimated that the fecundity of the normal

woman is 25%, while that of the subfertile woman is about half that (4,5). Is IVF as a first line procedure warranted in the light of the current success rate and the invasive nature of oocyte collection? Success is on the average only 20% per replacement, or in good centres 30%. In spite of optimism, the success rate has not improved much more. The main hurdle is implantation, which is disturbed by the follicular stimulation commonly used for IVF. This may be overcome by cryopreservation of embryos for later undisturbed cycles, and initial pregnancy rates from replacement of frozen-thawed embryos have been encouraging (6). Also, ova collection requires a laparoscopy; this may however be changed with the widespread use of ultrasonically-guided ova recovery. IVF as an outpatient service has been practised successfully (7,8). Also, the emphasis on private venture has resulted in "patents" on reproductive techniques, especially "uterine lavage"; such patents are against the spirit of science and medicine.

Here, in Singapore, IVF has also been subjected to much publicity. When the first IVF baby was delivered on 15th May 1983 there was much excitement, as it was the first such baby born from an IVF program in Asia (east to Israel). While the publicity created public interest in the program, it also generated undue pressures on the patients, especially the parents and family of the first IVF baby.

ETHICAL STATEMENTS ON IVF FROM SINGAPORE

As a consequence of the ethical anxieties created all over the world from both public media and authoritative reports (such as the RCOG report (9), the Royal Society report (10), the Waller Report (11), and the Warnock Report (12) and statements from the Medical Research Council of UK (13) and the American Fertility Society (14), the Ministry of Health in Singapore initiated a Committee of Artificial Insemination, In Vitro Fertilisation and Embryology in November 1984 to look into the matter locally. The terms of reference were "to examine the social, ethical and legal implications of recent and potential developments in the field of human-assisted reproduction". In the meantime, the Ministry has informed the private sector that applications for setting up IVF centres will have to wait the outcome of this Committee's deliberations.

The Singapore Medical Association formed an ad hoc committee on IVF, chaired by Dr Teoh Eng Soon. This committee drew up a "Memorandum on artificial insemination, in vitro fertilisation and embryology" for the Ministry of Health (15). It recommended, amongst other things, the setting up of an IVF Review Board which will license and control IVF centres, allowing cryopreservation of gametes and embryos, and properly designed experiments on human gametes and embryos. Likewise, the Obstetrics and Gynaecology Society of Singapore, under the Chairmanship of Dr K M Seng forwarded a short report to the Ministry, in which the Society recommended licensing of IVF centres. We have also submitted 2 reports to the Ministry, in August 1984 and January 1985, on IVF, its relevance, acceptance, limitations and possible abuse (16,17).

RELIGIOUS BACKGROUND

In 1981, while we were considering setting up an IVF and ER program in Singapore, we embarked on a questionnaire survey amongst patients attending our sub-fertility clinic and first year medical students as they just started on their undergraduate course. The sample sizes were 113 and 168 respectively. The survey was repeated in 1983, 6 months after the

delivery of our first baby (18). The sample sizes were then 70 and 118 respectively (16).

In 1981, while all the medical students had heard of the "test-tube baby" only 85.0% of the subfertile population had heard of it. In 1983, only one of 70 subfertile patients had not heard of the "test-tube baby"; again all medical students had heard of it. 73.5% of the subfertile patients and 78.0% of the students did not consider it ethically wrong in 1981. More subfertile patients (94.3%) considered it ethically right in 1983, as compared to 74.6% of students (p 0.001).

Of those who thought it was ethically wrong in 1981, 43.3% of subfertile patients objected because of interference with natural methods of reproduction while 52.8% of students objected on religious grounds (Table 1). In 1983, religious grounds form the majority

TABLE 1: REASONS FOR CONSIDERING IVF ETHICALLY WRONG

Reason	Subfertile		Students	
	1981	1983	1981	1983
1. Interference with natural reproduction	43.3%	25.0%	25.0%	17.8%
2. Fear of unknown	30.0	0.0	0.0	3.6
3. Religion	13.3	75.0	52.8	32.2
4. Moral	0.0	0.0	19.4	32.2
5. Others	3.4	0.0	2.8	14.2
6. Unknown	10.0	0.0	0.0	0.0
Sample size	30	4	36	28

of those who think it is ethically wrong (Table 1). Of the patients in 1981, 10.0% of those who considered IVF unethical were willing to undergo IVF as a therapeutic measure, while 25.3% of those who considered IVF ethical were unwilling to resort to it. In 1983, 25.0% of patients who thought it was ethically wrong were willing to resort to IVF, while 12.1% of those who considered it ethically right were unwilling to resort to IVF. Breakdown of ethical considerations according to religious beliefs showed no group obviously against IVF in 1981 and 1983 (Table 2).

TABLE 2: RELIGIOUS BELIEFS INFLUENCING IVF ETHICS

Religion	Subfertile pts '81			Subfertile pts '81			Medical students '81			Medical students '81		
	Eth. rt.	Eth. wg.	n	Eth. rt.	Eth. wg.	n	Eth. rt.	Eth. wg.	n	Eth. rt.	Eth. wg.	n
Roman Catholic	83.3%	16.7%	6	71.4%	28.6%	7	66.0%	44.0%	25	83.3%	16.7%	12
Christian	77.8	22.2	9	100.0	0.0	7	72.4	27.6	76*	69.4	30.6	72
Buddhist	80.4	19.6	56	100.0	0.0	21	100.0	0.0	11	100.0	0.0	7
Taoist	66.7	33.3	3	100.0	0.0	8	100.0	0.0	2	66.7	33.3	3
Muslim	50.0	50.0	6	75.0	25.0	4	50.0	50.0	2	0.0	0.0	0
Hindu	50.0	50.0	16	100.0	0.0	5	100.0	0.0	5	66.7	33.3	3
Aethist	75.0	25.0	16	94.1	5.9	17	93.3	6.7	30	85.7	14.3	14
Others	100.0	25.0	16	94.1	5.9	17	93.3	6.7	30	85.7	14.3	14
Unknown	—	—	—	—	—	—	100.0	0.0	1	—	—	—

* excluding 1 unknown reply from the students ('81)

No statistical differences between patients and students in each major religious category (p 0.1% by chi-square test with Yates correction)

The students who thought IVF ethically right in 1981 were asked whether it was ethically right to extend the procedure to research on human embryos. There were equal numbers of ethically right and wrong responses and there were no dominant religion or sex in either group (Table 3) (19).

In a Straits Times report on 10th February 1982, it was stated that "Muslim, Hindu, Buddhist and Sikh leaders have said they accepted the idea of test-tube conception to help childless couples in Singapore". However, the Roman Catholic Church in Singapore was against IVF.

TABLE 3: ETHICAL VIEWS OF MEDICAL STUDENTS ON RESEARCH OF HUMAN EMBRYO

	Ethically right	Ethically wrong	Unknown
Sex: male	49 (49.5%)	49 (49.5%)	1 (1.0%)
female	13 (41.9%)	15 (48.4%)	3 (9.7%)
Religion:			
Catholic	6 (42.9%)	7 (50.0%)	1 (7.1%)
Christian	22 (40.7%)	29 (53.7%)	3 (5.6%)
Buddhist	5 (45.5%)	6 (54.5%)	0
Taoist	1 (50.0%)	1 (50.0%)	0
Muslim		1 (100.0%)	00
Hindu	3 (60.0%)	2 (40.0%)	0
Aethist	16 (57.1%)	12 (42.9%)	0
Others	9 (60.0%)	6 (40.0%)	0

POSSIBLE ABUSE OF IVF IN SINGAPORE

While IVF is ethically accepted by the majority in Singapore, there is a possibility of abuse of this method of treatment by the medical profession for the reasons touched upon earlier. What has happened to IVF in developed nations may also occur in Singapore. We are fortunate in Singapore to have a successful IVF program. However, this is only the beginning of the many advances in this new science. We must take stock of the situation early and provide the framework to control its development. On the one hand, it must not be allowed to grow without checks, and experi-

ments performed without proper scientific and ethical understanding. Also, in that light, neither must IVF centres be freely allowed to mushroom in our small community; it will only bring this new science into disrepute as professionalism is strained in a small pie that is being cut in too many ways. On the other hand, IVF must not be choked to death as its infancy because it has tremendous potential in improving the future of mankind (20).

CONCLUSION

In this short presentation, we have outlined the development of IVF in the public eye and the effect of private ventures on IVF. While the present technology in IVF does not warrant IVF as a first line procedure, improvement in the success rate and non-invasive methods of oocyte collection may change this. In Singapore, IVF is accepted by the majority. However, to prevent possible abuse of this method and degeneration of professionalism in this fast advancing field, we recommend that a licensing body be set up.

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