

LOSS OF HUMAN EMBRYOS SECONDARY TO IN VITRO FERTILIZATION *

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Abstract

There cannot be any doubt that wanting to have children is a commendable aspiration for couples with fertility issues ^{*}. Nevertheless, like any human endeavor, in order to assess the ethical ramifications of in vitro fertilization, we cannot take into consideration its ultimate goal alone; it is important that we evaluate the method used by IVF to attain that goal.

That is why we believe it is of paramount importance to determine the extent to which human embryos are lost through the use of in vitro fertilization; if this procedure involves the loss of human embryos then it is important to take this aspect into account when determining whether this procreative practice is ethically sound.

This study evaluates the extent to which human embryos are lost through IVF. It is determined that approximately 7 embryos are lost for every live baby born. The author also calculates the total number of human embryos that may have been lost since 1978 when the technique successfully produced its first baby.

Keywords: in vitro fertilization, loss of human embryos, negative effects of in vitro fertilization, loss of human lives, secondary effects of in vitro fertilization.

Much has been said and written regarding the announcement, on 4 October 2010, and the subsequent awarding of the Nobel Prize in Medicine to Robert Edwards on 10 December 2010, for his work in the field of reproductive medicine, work which led to the first successful conception through IVF (in-vitro fertilisation), culminating in the birth of a baby girl, Louise Brown . Much of what has been said has focused on the positive aspects of this technique, and so we will not elaborate on them here. Yet the use of IVF isn't always associated to positive outcomes, in fact some can be said to be negative; there is one such aspect that we believe to be the most significant: the number of embryos – human lives—that have been lost as a result of this technique.

To be able to support our claim that human lives are lost through IVF, we need to take as our point of departure two biological facts. The first is that a human embryo is a living being and its destruction is tantamount to destroying a human life; and second, that freezing human embryos is equivalent to their destruction, for sooner or later they will eventually be destroyed unless they are transferred to the woman's uterus for reproductive purposes, an occurrence which is rare.

Once we have established our premise, we will now move on to our thesis, that IVF not only produces life, but is also associated to a consequence, which, even though it is not a desired outcome, it is still negative—that of death.

But before determining the number of embryos that may be lost through the use of IVF, and the total number of embryos lost since the technique was introduced, it is important to indicate that from the moment the first experiments in IVF began in 1960 , until the birth of Louise Brown in 1978 , nine years of laboratory work transpired which entailed the destruction of an indeterminate number of human embryos. That means that to achieve this one successful pregnancy, 100 failed attempts were made .

As stated earlier, probably the most serious ethical problem associated with IVF is the great number of human embryos that are lost.

We have based our calculations on a recently published article which provides interesting data on the subject .This study evaluated 572 ovarian stimulation cycles which yielded 7,213 oocytes, that is, 12.6 oocytes per cycle. A total of 2,252 embryos were produced and 326 live babies were born (226 from fresh embryos and 64 from frozen embryos). Based on these figures, the number of live babies born for every 100 embryos was 14.47;

or to put it another way, for every 100 embryos produced, 85.53 embryos were lost.

That is, 6.9 embryos are lost for every live baby born.

Moreover, and although this is of little ethical impact, it is of interest to point out that 4.6 live babies were born for every 100 extracted oocytes.

Another more recent study by the same group analyses 191 ovarian stimulation cycles performed on 53 female donors. The donors were classified into two groups, 28 being highly successful donors, and 23 were classified as standard. The highly successful donor group yielded a total of 2,470 oocytes from 130 cycles of ovarian stimulation. Of these, 779 embryos were produced, (342 were transferred as fresh embryos and 437 were cryopreserved). A total of 125 live babies were born. The standard donor group yielded 1,044 oocytes, from 61 cycles of ovarian stimulation. Of these, 336 embryos were produced; 131 embryos were transferred and 205 were cryopreserved. The total number of live babies born was 26.

Based on these figures, a total of 1,115 embryos were produced and a total of 151 live babies were born. Consequently, the number of live babies born per 100 embryos was 13.54, in other words, the number of embryos lost for every 100 embryos produced was 86.46. For every live baby born, 7.38 embryos were lost. If we take both studies into consideration, then we can state that for each live baby born approximately 7 embryos were lost.

In light of the above data, we extend our analysis to ask the following question: How many embryos, how many human lives, have been lost due to IVF since its introduction in 1978?

It is thought that since its introduction in 1978, approximately 4.3 million babies have been conceived through in-vitro fertilisation . If approximately 7 embryos are lost for every live baby born, then approximately 30 million human embryos have been lost through IVF since 1978.

Yet, in addition to the embryos lost in cases leading to a successful birth, there are other circumstances which also lead to a loss of human embryos. In effect, the previous calculation only took into account the embryos lost per live baby born but there is a significant number of women who are not able to conceive a baby through the IVF process, despite receiving several cycles of ovarian stimulation and subsequent transfer of

embryos. This means that even when the process does not lead to a successful birth, failed IVF processes also bring about the loss of an indeterminate number of human embryos.

In effect, approximately 50% of the women who receive three cycles of ovarian stimulation as part of IVF treatment fail to have a child. If 10 or more embryos are produced during each stimulation, and the average number of cycles per patient is at least 3, then for each patient that fails to have a baby, approximately 30 embryos will have been lost. This figure is greater—approximately 50—if we take into account that most clinics will give 5 cycles of treatment before IVF is abandoned.

Additionally, if the total number of children born via IVF treatment since 1978 is 4.3 million and if approximately 50% of the women who receive treatment are unable to give birth to a baby, even taking into consideration that some of the pregnancies result in multiple births, at least 3 million women failed to have a child after receiving IVF treatment since 1978. Therefore, based on the previously calculated figure of 30 embryos lost by each woman that does not have a child via IVF and given that approximately 3 million women have not given birth to a child through this treatment, a total of approximately 90 million embryos have been lost through unsuccessful IVF treatment.

That is, the total number of embryos—human lives—lost since the introduction of IVF in 1978 owing to the two circumstances mentioned above, would be 30 million + 90 million, that is, 120 million. We believe that this figure is sufficiently large, and that it should, or rather must, be taken into consideration when ethically evaluating this practice.

To help us gauge the magnitude of the number of human lives lost through this procedure, we thought it would be enlightening to compare it to the number of human lives lost to Aids since its discovery in 1981: approximately 25 million. That is, over a comparable length of time, five times more lives have been lost through IVF than from Aids, one of the most devastating pandemics of the last quarter of the 20th century and still a serious concern today.