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The beginning of human life at the laboratory: The challenges of a technological future for human reproduction☆

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ABSTRACT

This paper analyses the underlying principles and social consequences of the increasing detachment between human reproduction and sexuality via the process of technological intervention in the biological body, with a focus on current debates in Portugal. With biomedical techno-sciences, conception has become artificial (in vivo or in vitro fertilization) and independent of the coital activity. The risks and uncertainties concerning the development of Science and Technique in the biomedical field applied to reproduction present important challenges and bring forth critical questions to future generations and to humanity as a whole. For example, gametes donation (heterologous artificial insemination) implies fulfilling some ethical principles such as informed consent, anonymity and gratuitous involvement; other possible problems include the potential development of eugenic aspirations, dilemmas arising from the commercialization of gametes, embryos and fetus or surrogate motherhood, from reproductive cloning or embryonic stem-cell research techniques. In this framework, new entities appear on the scene like gametes donors, cryopreserved embryos or rented wombs that demand new laws and governmental regulation. Therefore, it is essential to study which values the techno-sciences are actually redefining, the range of social choices towards these values and the consequences these choices have – in terms of parenthood rights and family ties, for example. In this context, the paper will reflect upon these new values and will question whether they are compatible or not with democratic principles such as autonomy, human dignity or equal rights. Building upon my post-doctoral research, I will approach this problem theoretically, using tools from the Sociology of Science and of Medicine, and through data analysis (such as reports from ethical committees, legislation and media).

1. A critical approach to assisted reproduction based on principles

Medically Assisted Conception comprises a set of methods that are intended to provoke, through medical intervention, a human pregnancy and subsequent childbirth regardless of coital activity. However, procreation without a sexual act cannot be confused with asexual reproduction, as exemplified by reproductive cloning. The latter means the process of procreation carried out using only a genetic component, whether this comes from a female or male person. Assisted Reproduction, on the other hand, includes a range of reproductive techniques and technologies, whose major differences are mainly related to the fact that fertilization occurs inside or outside the female body, in vivo or in vitro, respectively. Moreover, there is also a distinction as to whether the genetic material comes from both members of the couple only (homologous artificial insemination), or whether it is necessary to have a genetic

☆ This paper is a first foray into the subject of a post-doctoral research on the controversies, tensions and constraints regarding heterologous artificial fertilization.

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contribution from a third-party donor (heterologous artificial insemination).

Medical assistance to human procreation comprises a set of complex issues and challenges – bioethical, scientific, moral, medical, social and political – which raise many heated controversies and intense debates in the public sphere, animated by policymakers, physicians, lawyers, sociologists, psychologists, members of ethics committees as well as associative and religious representatives. Among other things, it raises questions on the ethical principle of responsibility and substantive ethics [55]; on a principle of autonomy and its limits in relation to people who want to intervene in the gestation of other human beings; on a precautionary principle; on a principle of anonymity; on the principle of gratuity, unavailability of the body and non commodification of human life; on the principle of conscientious objection; and on the principle of informed consent.

The sociological understanding of the history of assisted reproductive technologies leads us necessarily to the laboratory, to clinical trials and objects that bring promises and obstacles [53], some expected and others unpredictable (risks and uncertainties). On the one hand, we witness a decoupling of sexuality, procreation and parenting; on the other hand, we find a different relationship between nature, science and technical innovation that brings new ethical challenges. We must then analyze and reflect on the underlying moral and normative principles as well as social consequences of our collective choices within assisted conception, for future generations and for humanity as a whole, since the development of techno-sciences is contributing to the redefinition of social values in contemporary societies.

In what concerns our guiding conceptual characterization, we must define at the outset the categories of analysis, namely discerning the principles we are dealing with throughout this argumentation. It is essential to distinguish between two sets of principles from different positions and the criteria for such identification: on the one hand, those principles underlying the uses of biotechnology and of assisting technologies of procreation and, on the other hand, those that pertain to a wide variety of social responses to such uses, such as regulatory and ethical principles.

Firstly, the principles of biotechnology refer to those that emerge from technological application. This includes using biological systems, living organisms or their products for manufacturing and commercial purposes, which involves the deliberate manipulation of DNA molecules in numerous different activities, from breeding food crops or domestic animals to medical assistance to human procreation. A set of laboratory techniques developed within the last 20 years has been responsible for a redirection of financial resources and research efforts among established companies and universities. This corresponds to a new vision of science and technique concerning the design and control of nature, life, disease and reproduction as being specific applications of genetic engineering. The transfer of DNA is one of its examples.

Secondly, ethical and policing principles surge as part of regulatory proposals to address technological interventions, namely in terms of legal responses to the social dilemmas and moral controversies arising from the application and uses of technology in human reproduction. Here we are dealing with principles from bioethics see Ref. [1] and jurisprudence, such as individual autonomy, freedom of choice, responsibility, informed consent, anonymity, equality, beneficence, social justice or human rights.

In this regard, bioethics is best viewed as both a second-order discipline and also as part of public discourse [24]. On one side, bioethics is interdisciplinary, seeking a broader perspective and benefiting from contributions from different academic fields, professions and areas of expertise; on another side, it aims to promote moral reflection and discussion in courts, legislatures, media, arts and schools, including both academics and non academics in order to choose the best policy to adopt. Acknowledging bioethics' dual nature, and the distinction between its two roles and purposes, is therefore essential when we evaluate specific activities.

For example, the principles expressed in 'The Universal Declaration of Bioethics and Human Rights', adopted by UNESCO's General Conference on 19 October 2005, 'are more problematic if evaluated from the perspective of meeting standards in philosophical ethics than from that of advancing public discourse', since the document fails to rank and specify principles or clarify what is meant by calling potentially conflicting norms "foundational' ([24]: 265). In fact, some foundational principles, such as human rights, can be seen as undermining cultural diversity. However, it can promote useful discussions and moral reflection about bioethical problems, between different groups of people, for future policy.

Therefore, instead of a 'principalism' in bioethics based on moral principles, some authors propose a pragmatic strain in bioethical thinking, related to policy-making, communal deliberation and democratic consensus over the common good; for example, a shift from abstract and a priori theorization to the practical and empirical world of clinical medicine [3]. Through experimentation and validation, principles are flexible tools that are constantly being adapted and readjusted to current needs and social conditions, although we can question how its 'success' will be measured. Principles concerning life and its beginning arise from experience as human constructs, which serve to advance certain social purposes or interests such as assisting procreation.

This paper therefore aims to contribute to the discussion on new epistemic strategies to critically approach biomedical innovations applied to human reproduction. It endeavors to grasp the scenarios pertaining to the impact of technology both in human body and society, as well as to highlight which values and principles are being redefined. For this purpose, it is suggested an interdisciplinary articulation between sociology, anthropology, philosophy, bioethics and broader science and technology studies.

2. Risks, uncertainties and ambiguities: innovation in biomedicine

Scientific and technological development resulting from modernization processes poses new challenges, since it