

Physics and Psychology in Perinatology

Rudolf Klimek¹, Alfred Reron²

¹ Department of Endocrinology and Fertility,

² Department of Obstetrics and Gynaecology Jagiellonian University, Cracow, Poland

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Abstract: Medicine and psychology are just distinguished from many other scientific disciplines by the same object and subject, but only in medicine exists obligatory active care of another man. However physics is a basic natural discipline going about characteristics and motions of the matter, therefore these days perinatology can not be reduced to calendar periods, because today we can document fetal maturity progress in real time by enzymatic and ultrasound methods, and see in third trimester how fetuses in multifetal pregnancies compete with each other for existence. In spite of that recently fetuses in such pregnancies were supposed to grow identically in the same conditions. Their competition has not been taken into consideration. Each fetus has its own thermodynamic system, and another twin belongs to surroundings not to his/her system. Therefore fundamental question is not: what to do in case of death one of them, but how to diagnose this danger competition between themselves. Thanks to physics and uniform rights of the nature we can assess this competition in real time by estimation speed of changes in fetal spatial parameters. The aim of our study was pay attention to fact, that fight for existence between people, who have own feelings, experiences and memory, may start intrauterine. The 20th century medicine categories, has been absolutely predominated by wrongly programmed technology expense of man and the advertising of apparent successes but negligence of self-education.

Zusammenfassung: *Heilkunde und Psychologie in der Perinatologie.* Medizin und Psychologie unterscheiden sich von manchen anderen Wissenschaften dadurch, daß sie dasselbe Objekt und Subjekt haben, wobei nur in der Medizin die Verpflichtung zu aktiver Sorge für den anderen besteht. Dabei geht es in der Heilkunde auf naturwissenschaftlicher Basis um Eigenschaften und Entwicklungen, weshalb heutzutage die Perinatologie nicht allein auf äußere Maßeinheiten bezogen werden kann, weil wir heutzutage den fötalen Reifungs- und Entwicklungsprozeß in seinem Zeitablauf durch enzymatische Methoden und Ultraschall eindeutig dokumentieren können. Dabei sehen wir, wie im 3. Semester Föten in Mehrlingsschwangerschaften miteinander ums Überleben kämpfen. Trotzdem wurde noch neuerdings angenommen, daß die Föten in solchen Schwangerschaften in ihrer Entwicklung gleichmäßig voranschreiten, weil sie sich in der gleichen Situation befinden. Ein Konkurrieren wurde nicht in Betracht gezogen. Jeder Fötus hat sein eigenes thermodynamisches System und deshalb gehört der andere Zwilling zur Umgebung und nicht zu seinem eigenen System. Deshalb ist die grundlegende Frage nicht: was ist im Fall des Todes eines Mehrlings zu tun, sondern wie können wir diese Gefahr der Konkurrenz zwischen

ihnen erfassen und diagnostizieren. Dank der Medizin können wir heute diese Wachstums- und Reifungskonkurrenz durch die Erfassung der Wachstumsgeschwindigkeit einschätzen. Das Ziel unserer Untersuchung war, die Tatsache zu berücksichtigen, daß der Existenzkampf zwischen Menschen, die ihre eigenen Gefühle, Erfahrungen und Erinnerungen haben, schon in der vorgeburtlichen Zeit beginnen kann. Die medizinischen Kategorien des 20. Jahrhunderts wurden ganz allgemein durch falsch programmierte Technologie auf Kosten des Menschen insgesamt dominiert und durch die Verkündung scheinbarer Erfolge, wobei aber die Bedeutung der eigenen Entwicklungstendenzen vernachlässigt wurde.

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Contemporary man's life can be defined as the optimal accommodation to the natural environment. Human beings, as all distinct systems in the world, react with the world, influence it and are influenced by it. Although our identities are uniquely defined by our parents, all human beings are united by the mysterious fact of maintaining life and its possible transmission through death. [3, 4, 6]

Physics is the branch of natural sciences which deals with the properties and movements of matter. Matter can be considered from a few viewpoints – as forms of its existence, starting from radiation, through the structure of atomic nuclei and molecules, through organic organisms. And they all together create the macrocosm, the universe. It is astonishing that this macrocosm is governed by the same laws that rule the microcosm. It seems there is no beginning, nor end to it. It resembles a confined surface of a sphere, which has no boundaries – a system which could possibly not exist as all systems in nature have their boundaries. Nowadays, thanks to contemporary sciences we get to know the laws of nature, but on the other hand, by way of the uncertainty principle, we assume that the laws known to us only constitute a possibility or a chance that some phenomena exist, which all are explicitly combined. However all branches of science have in common one feature: a human being as a distinct biological system is not only an object of his or her pursuits but also their subject. It has to be stated clearly that cognition understood as a human being's vital need is more important than pure knowledge only for the sake of investigations and considerations. Thus only medicine and psychology stand out among all other sciences by what was previously emphasised, namely, the fact that the subject and the object of cognition are the same in both disciplines, with the reservation that only medical studies entail the obligation to actively help. It means not only a verbal communication or a psychological relationship but also effective actions, even if a human being's behaviour is a sufficient role model for another human being. [5, 7]

Medicine and psychology are bridged by what we call nursing, a discipline which deals with human beings who are well and unwell, considering the pro-health aspect, namely, that all nursing activities are necessary only when the human being's have sufficient knowledge and abilities to take care of oneself and there are circumstances convenient to do so. From this point of view, every human being should be a nurse of their health because everyone has only one thermo-dynamic path of the stages of our existence to follow from birth to death. [9]

A human being's life, from birth to death, considered in purely biological categories is a unique space-time event, with its own identity. In the most important

period of intrauterine development, the role of maintaining life is fulfilled by the mother and through her by, the family and the society, whose influence gradually becomes more and more important. This is why in the general social understanding of the problem, upbringing goes first and it is followed by education and medical conduct.

A great civilisation development and a simultaneous dehumanisation of sciences has stripped a traditional omniscient doctor's profession down to its healing aspects only; with nursing brought down to its auxiliary functions. The Hippocratic oath obliging every doctor to continually educate himself or herself was strongly limited because of a great surplus of useful information and new technological developments as doctors have to perform their professional and/or scientific activities well. Medicine was confined behind the closed door and to bring the situation back to the former condition one should give way to nursing of people's health and prevention of diseases before curing them, even using the most modern methods with the inevitable assistance of nursing, which has grown to become a field of science with a university status. [9] Nursing understood as such will bring back the right meaning to natural protection of optimal health of human beings as individuals as well as of the entire society. Even the richest societies cannot afford to provide the adequate standard of health care, whose accessibility is limited mainly by extremely high administrative costs of the health service.

We can say that at the beginning of every human life there are plenty of spermatozoa, most of which die so that one of them can fertilize an oocyte, selected from thousands of oocytes developing in ovaries in the process of maturation. One has to wonder if this great number of reproductive cells does not cause the destruction of so many spermatozoa and oocytes – the latter are not that numerous but definitely there is a great number of them too, initially developing in the Graafian follicle so that these biological structures produce life of a zygote. At the beginning of this live a purely physical signal appears – temperature changes occur, which means a energetic exchange of some sort and the first signs of radiation are perceptible, whose integral part has to be what we call life and which cannot be brought down to time only as time exists in inanimate structures too. Considerations on the beginnings of human life are important as the greatest biological selection occurs before the foetus implants in the mother's system. But it has to be remembered that the development of the foetus is determined by this pre-selection. Lack of respect for life, for this universal form, which is controlled on all levels of a human organism, results from understanding birth as a purely mechanical process and not taking into account all phenomena that form a zygote in its environment. [2]

Pregnancy is nothing but a condition of a woman starting from the moment of fertilisation of one of her oocytes and ending when a child is born. In the moment of fertilization a new object but also a subject appears within a mother's organism (the maternal system) that can be described as conceived human life. The beginning of this life is precisely defined as the moment of the insemination of the oocyte, in other words, the moment of the creation of a zygote and, which should be stressed, before its nucleus is formed.

By definition, outer limits delineate every system from the rest of the world called the environment. And it is the cellular membrane which forms these outer limits for the zygote. There is no doubt that the mother's and the child's identities

are different from each other as both systems come from completely different parents.

While the act of conception is precisely defined and, moreover, possible to observe – until some time ago, only *in vitro*, nowadays, *in vivo*, too, through the use of the most modern nuclear magnetic resonance, the moment of a child being born is more difficult to define and by its nature, more prolonged. The naturalness of a birth is shown by its distribution along the Gaussian curve, which is similar to all phenomena stochastically conditioned. Thus all types of interference leading to artificial induction of a birth only shorten the intrauterine period, but it does not change the fact that from conception to birth we are confronted with two systems of divergent identities, with the mother's organism defined as the environment for the child. [1, 2, 8, 14]

And this is why the signal whether a foetus can start an independent life depends largely on the mother's condition, her thermo-dynamic path, which determines when a human being should be born. Perinatology cannot be brought down to temporal terms because we can use enzymatic and ultrasonographic monitoring methods to estimate the development of a foetus. In this way we can see how foetuses in the third trimester of multiple pregnancies compete with each other. Not so long ago it was hard to accept that medicine was largely interested in how to deal with one foetus when the other died.

It was assumed that foetuses developing in this way underwent the same conditions. Competition between them was not contemplated at all. Every foetus in a multiple pregnancy is a system in itself and its twin foetus is a part of the environment, not of the other foetus. The question to be asked here is not what to do when one of the twins dies but how to recognise the dangerous competition in the mother's womb as early as possible. And this is the basic consideration. Too much has been written about letting children be born at their individual times. [10, 12] Perinatology has made an enormous step forward thanks to the humanisation process in medicine, which has turned from ecumenical to professional and ecological. In our pronouncement we want to emphasise that research in child development shows and differences in this development within the maternal system, which gives us a great chance to inspect a model which can for example show us how competing foetuses in a triple pregnancy cause the third foetus to die instantly or after some time, or even after birth. But today we can see when the acceleration of the development of one foetus occurs at his or her brother's or sister's expense, which happens in the most beautiful environment of the mother's womb. This is why the background that we represent stresses further development of perinatology, not only in the field of forecasting a possible death of a child in the mother's womb in a single-foetus pregnancy but also in the field of researching competition in the mother's womb estimated on the basis of changes of spatial parameters, thanks to physics, thanks to universal laws governing nature. We often look at the selection of animals, the ecological world. It appears, that this selection occurs in our world too – in the best environment that can be imagined: the mother's womb. The aim of this lecture is to indicate that the fight for existence can begin as early as in the mother's womb and between people who have their own feelings, experiences, memory, which all are often considered using the categories of the previous century medicine, which was dominated by ill-planned technology, at

humans' cost and aimed at advertising seeming successes and neglecting the need to self-educate.

A gynaecologist as a doctor should act according to strictly professional principles, which are the basis of his behaviour towards fertile, infertile and pregnant women, but in every individual case a gynaecologist should take account of the influence of his or her activities on their present and future health. Thus, next to a pregnancy conduct, it is important to control ovulation of every woman. It is enough to realise that there are common thermodynamic roots of premature birth and the uterine cervix cancer. [13] Poverty, lack of education, alcohol, drug and cigarette abuse, early sexual life, two or three miscarriages, frequent infections – these factors are precisely defined and they may lead to a distempered pregnancy. During such a pregnancy, a child conceived in an organism out of its thermodynamic balance has such a detrimental influence on the mother's organism that the only way to survive for a child is to be born prematurely and move into a more favourable external environment, at least seemingly more favourable, if staying within the mother's organism is threatened with death, with increasing child's needs. [3, 5]

It is up to psychologists, lawyers and philosophers to answer the eternal question concerning the separateness of existence and identity of an unborn child. By considering a foetus as a person, he or she is given rights which are irreconcilable with the mother's being a subject and *vice versa*. However, it is often forgotten that not only in a mother's womb there is too little place for two persons at a time. It is a great luck of gynaecologist that in case of having to make a choice he or she can try to save the unborn child from death in the environment, which was formed first of all to protect any conceived form of life in entire nature, not only in the case of humankind.

To sum up, a human's health, including a pregnant woman's health depends on three elements. First – upbringing; second – education; third – treatment. Every human should take into consideration the three factors: moderate and variable nutrition, controlled physical exercise and personal hygiene as well as the hygiene of the entire society. These three factors are responsible for 60%–80% of cases of illnesses.

The future of humans depends not only on doctors – the main threat to a human being is the human being himself. We, doctors, are so often enamoured with ourselves and have been too long influenced by the classical cell medicine, fascinated with the developments in the medical technology. Now, the situation has changed. We think the future of medicine is its further humanisation. And from this place we would like to express our gratefulness and pay tribute to Professor Peter Fedor-Freybergh, who introduced psycho-medicine to the international arena and elevated it to a prominent position. Therefore, all of us, to some extent, are his pupils.

References

- [1] Chamberlain D.B.: 1993, How Pre- and Perinatal Psychology Can Transform the World. *Int. J. Prenatal and Perinatal Psychology and Medicine* 5(4): 413–424

- [2] Cosmi E.V., Klimek R.: 1993, Philosophy of birth: Natural process or artificial obstetrical procedure? *Int. J. Gynecol. Obstet.*, 41, 231
- [3] Klimek R.: 1990, Termodynamiczne rozważania nad początkiem duchowego życia człowieka. (Thermodynamics in the beginning of the spiritual life of man) *Gin. Pol.*, 61, 90–97
- [4] Klimek R.: 1991, Psycho-emotional determination of human individual identity. *Int. J. Prenatal and Perinatal Studies* 3(3/4): 175–181
- [5] Klimek R.: 1991, Gynecology in terms of ecumenical medicine. EAGO 6th Meeting, Moscow, Abstr, 34
- [6] Klimek R.: 1993, Refleksje psycho-ginekologiczne. (Psycho-gynaecological reflections) *Gin. Pol.*, 90–97
- [7] Klimek R.: 1993, Profilaktyczna i teoretyczna psychomedycyna z perspektywy 40 lat działalności uniwersyteckiej. (Prophylactic and theoretic psychomedicine in the 40-years universitic experience) *Gin. Pol.* 467–472
- [8] Klimek R., Walas-Skolicka E.: 1995, Birth Term in Terms of Psycho-Medicine. *Int. J. Prenatal and Perinatal Studies* 7(1): 3–5
- [9] Klimek R.: 1996, Pielegnowanie przed leczeniem w medycynie wyobrazalnego czasu. (Nursing before the treatment in the medicine of the imaginary time *Pielegniarstwo* 2000, 1, 6–8
- [10] Klimek R., Fedor-Freybergh P., Janus L., Walas-Skolicka E.: 1996, A Time to Be Born. DREAM Publishing Company, Inc. Cracow
- [11] Klimek R., Reron A.: 1998, Medical versus social aspects of unwanted pregnancy. *Int. J. Prenatal and Perinatal Psychology and Medicine* 10(3): 287–293
- [12] Klimek R.: 2001, Let a man be born at his own due time. *Archives of Perinatal Medicine*, 7, 15–18
- [13] Klimek R.: 2001, Biology of Cancer: Thermodynamic Answers to Some Questions. *Neuroendocrinology Letters*, 22, 413–416
- [14] Reron A., Kopczynska-Tyszko A., Zdebski Z.: 1991, Attitudes of Pregnant Women Treated for Threatening Premature Delivery Towards Sex, Pregnancy and Labour. *Int. J. Prenatal and Perinatal Studies* 3(1/2): 139–143