



Column

IN FIGHT AGAINST CANCER THE PREVENTION IS ESSENTIAL (Analytical Information for Physicians)

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*Natural forces within us are
the true healers of disease
Hippocrates*

One hundred years ago an American scientist Raus revealed a certain filterable agent in the sarcomatous tumour and proposed the virus theory of tumours origination. This fact became a stimulus to impetuous development of virus-genetic concept on generation of certain types of sarcomas, lymphomas, cancerous tumours and hemoblastoses.

With the emergence of the first Roentgen devices, skin cancer began to generate on hands of X-ray technicians who were putting the photoplates underneath the rays and suspected nothing about the harm of γ -irradiation. Explosions of atomic bombs over Japanese towns, the greatest radiation cataclysm of the 20th century in connection with the accident at Chernobyl NPP - here is the tragic and large-scale evidence of ionizing radiation role in the genesis of systemic and solid tumors.

Data of no less reliability is available on chemical carcinogens: aniline dies, nitrosamines, aflatoxins, dioxins, etc. All over the world about one million chemicals are produced, of which 10% are mutagens and 10% - carcinogens. There are such chemicals as 7,12-dimethylbenzanthracene and benz(a)pyrene, which cause development of malignant neoplasms in laboratory animals in 100% cases. (Upon studies on preventive action of embryonic anti-tumour modulator, we used exactly these carcinogens).

It was for long years that in the former All-Union Oncology Scientific Research Centre of the Academy of Medical Sciences, as stated by Nikolai Nikolaevich Blokhin, the walls were shaken by

hot discussions of supporters of the viral-genetic theory and the theory of chemical carcinogenesis. This was a profound scientific debate of 2 world-known scientists: Lev Zilber and Lev Shabad. Nowadays these disputes sank into oblivion, as if they never took place.

Was the role of viruses and chemical carcinogens finally revealed then? Of course, not!

The specialists in biolocation provide indisputable data on provoking role of energy-active (geopathogenic) zones of Hartman and Curry. It is proved that long stay of a bedroom suite in mentioned anomalous irradiation zones with a high quantitative constancy brings forth development of malignant tumours. In Western Europe, USA, and certain towns in Russia biolocation studies for determination of geopathogenic zones in residential houses are widely spread and practiced. Likewise, in Armenia one of our specialists also popularizes this direction as an attribute of preventive oncology.

The role of acquired and innate immune deficiency is of high significance in the mechanisms of neoplastic growth origination. The neoplastic growth, to a certain extent, is conditioned by the medicamentous pragmatism of present-day medicine (antibiotics, hormonal preparations, chemopreparations), diagnostic and therapeutical radiation loads.

One cannot disregard continuous negative stressful impacts. In Boston, I was a witness of experiments in transgenic mice, which without the external influence, developed breast cancer during 3-4 months. Mice were kept in double iron-net cages in complete safety but surrounded by aggressive cats. They developed malignant tumours earlier and more frequent compared to control mice.

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Undoubtedly, intimate mechanisms of prolonged stressful impacts to organs and systems are versatile and not entirely revealed yet. In the above-mentioned experiments, Boston immunologists registered a marked inhibition of cellular and humoral anti-tumor protection judging from over 10 indices. Indeed, the stress became an attribute of modern life and therefore it is one of significant immunosuppressive factors.

It appears that everything is known about the causes of cancer diseases. But the fact remains that in no precise case of oncopathology in humans except certain obligate pre-cancers, we do not know why, when and where the malignant degeneration occurs in this individual. Oncoviruses are omnipresent, ubiquitous, chemical carcinogens over-flooded the human habitat and not in all people exposed to intense irradiation the tumorous growth originates! Annually one of 1000 smokers develops cancer of lungs; in non-smokers it is 10 times rarer.

The matter is as follows: having comprehensive knowledge on inducing and provoking carcinogenic agents we utterly insufficiently imagine the object of their influence. In "cause-effect" relation this is the most complicated, intricate question in the entire doctrine on tumours. In our opinion, its solution is possible from the position of an old but not at all obsolete point of view.

Long before elucidation of the role related to different causative factors the German patho-anatomist Konheim, while performing post-mortem examination (dissection) of patient who died because of a neck tumour was astonished to reveal a conglomerate of fish-typical branchial arches upon incision. It appears that at the early stage of embryogenesis a human embryo (fetus) undergoes the "fish" stage with rather expressed branchiate formations. Due to this or that cause during the further intrauterine development these formations underwent no reverse development.

This sectional finding gave rise to formation of dysembryoplastic theory of tumours, which obtained its further development in works of outstanding European, Russian and American researchers. Nowadays a number of tumours,

predominantly those of connective and vascular origin, are undoubtedly classified as dysembryoplastic ones, i.e. as intrauterine malformations (development defects).

There are such demonstrative cases, when hair, sebaceous glands, teeth, skin patches are found instead of ovaries and colloid characteristic (inherent) for thyroid gland is found in place of adrenals.

There emerged the concept of "lost or stray embryonic cells", which elucidates the insight to cancer as a fatal inevitability laid-in or rather programmed at the early stage of embryogenesis.

Recent studies demonstrated that being „lost“ since the time of intrauterine development, these cells are scattered all over the organism not only in children, but in adults and elderly as well. It is not only impossible, but also even senseless to visualize, determine their localization.

In general, one should mention that origination of life, processes of determination, the presence of infinitely many phenotypes remain to be mysteries of nature that unwillingly discloses its secrets to the inquisitive minds and eyes of researchers. Interventions to these intimate processes at molecular-biological, genetic, nanotechnological levels are frequently disputable. Indeed, all that is known to biological science is a mere outer manifestation of phenomena, which are far from being unraveled; moreover, the life repeatedly proved that the nature is able to outwit our ingenuity.

Within the above stated context, one should mention that embryos, likewise newborns, are especially vulnerable to external and internal impacts, including carcinogenic ones. This is an indisputable truth!

At our laboratory, we succeeded in revealing that the culture of normal embryonic cells cultivated under conditions of such a super-weak (sub-threshold) exposure as the geo-pathogenic one was transformed very quickly. The cells acquired polymorphism, they became atypical, their division was accelerated and giant ugly structures were formed. This signified to impairing the conservatism of heredity that achieves its

apogee in case of the malignant growth.

The above stated facts indicate that the etiology of cancer is much wider than the isolated causative agent and rests on a complicated interrelation and hierarchy of various external and internal factors.

Embryonic cells and their complexes, which remain after birth are invisible for the unaided eye and for decades can in no way manifest themselves being in para-biotic, "dormant" state. For example, moles have the neurogenic differentiation that is not characteristic for skin derivatives and in fact moles are malformations. With age, when as a result of weakened homeostasis and immunosurveillance moles appear and grow in size, begin to desquamate and bleed, people aware of danger present to a doctor. However, if obscure embryonic cellular complexes, germs "awaken" in lungs, liver or pancreas, this lasts for months and years being absolutely unnoticed. (Whether or not, only the immune-enzyme assay can reveal in blood the emergence of tumour markers, which, apropos, are intrinsic to normal intrauterine development of human fetus).

It is obvious that the fate of both embryonic cellular complexes remaining after birth and common cellular structures, which underwent mutations, depends not only on initiating and background pathogenic impacts, but on the level of homeostatic anti-tumour protection of a given individual as well.

In order to obtain more clear view of this aspect of the problem I should like to give such an example. In 1980s, the Nobel prize for medicine was as an exception awarded to a photographer. He succeeded to penetrate into the tumour of lungs in a human organism using a special optical probe and then to take pictures demonstrating in dynamics how a small lymphocyte (a natural killer) attacks the relatively big tumor cell: thrusts its sting and entirely lyses it. By analogy with the Bible plot this got the name of a fight of little David with Goliath.

Thus, in general outline one can identify 3 integral components, constituents of the tumour growth process: the causative effect, the subject

of a malignant transformation and the reaction of protective systems of an organism, which sustain the constancy of cell composition. To calculate, to objectify the role of each component specifically for human pathology, - not in experimental models, - is extremely difficult or, most probable, impossible. Therefore, to our conviction, cancer is a result of a concurrence in a number of unfavourable circumstances, the unambiguous interpretation of which is extremely speculative.

Emil Freilich (Houston), the known specialist in the area of innovative anti-cancer technologies, supposed that in the commenced century cancer, as one of incurable diseases with a short lifetime of patients, will pass to a number of incurable diseases with more prolonged duration of life.

What is the way out? Most probably, the alternative is as follows: besides the improvement of screening programmes for early revealing and methods of complex treatment the equal great attention should be devoted to specific stimulation of immune response of practically healthy people from high oncological risk groups; the stimulation should be aimed at prevention of occurrence and lysis of emerging cancerous cells.

As an oncologist-pathologist, I have to mention that the tumor is monoclonal only at the ultra-early rudimentary and initial stages; further on there appear new clones of a cell, which acquire resistance in the process of growth and in response to chemioradiotherapy. In this respect, the receptor apparatus of polyclonal tumor cells' surface membranes acquires cell mosaicism. This is why even target chemotherapy aimed at clearly and strictly defined receptors is far from being efficient in all cases.

From the point of view of quantum medicine, there also occur stable coherent connections through millimeter extremely high frequency electro magnetic waves at the level of intercellular contacts. Being beyond control of integral systems (neuroendocrine, immunological, quantum-information - from the point of view of "physics of living matter") they are inclined to manifesting growth. Hence, there proceeds the insistent neces-

sity, while fighting against cancer, to “strangle” it at the ultra-early rudimentary stage before formation of the stable cell association and ability to structure vessels of tumour cells, i.e. before “tumourous angiogenesis”. This latter is one of the sources for dissemination of malignant cells all over the organism and emergence of metastatic foci.

The life itself dictates a priority for preventive fight against cancer.

- Numerous forms of malignant tumours acquired the character of an endemic calamity and the mortality in a number of countries, including Russia, remains to be “ultra-high”.

- From the economic point of view treatment of oncological patients as mentioned in editorial of “Together against Cancer” Journal (2007, No. 1-2) can “ruin even a very rich country”. The scientists of N.N. Petrov Research Institute of Oncology (St. Petersburg, Russia) published data that the “cost of therapy for one patient with colorectal cancer increased from \$500 in 1999 to \$250,000. Moreover, pharmacological companies persistently reiterate that they have to compensate the research related expenditures, which amounted up to \$800 million for a preparation” (Problems of Oncology, 2005, No. 5).

Our research platform is as follows: cancer cell might originate, get implanted, and moreover reproduce uncontrolled only in case it can protect itself against the factors of immunity. This adjustment to “hostile” environment occurs in 2 ways: cancer cells produced proteins characteristic for intrauterine development and their covering by a fibrin “cocoon”, “shield”, using the expression of Linus Pauling the founder of quant chemistry. Fibrin, as known, participates in the most trivial general pathological processes and in thrombus formation. The immune system of an organism is indifferent to formation of a thrombus. As obvious, there is a generality of risk factors of thromboembolic and oncological pathology. In experiments with transplanted tumours our specialists proved that mere decrease of the thrombogenic potential reduces transplantability of malignant cells. In the course of time the agenda might

include the issue of integral prevention of thromboembolic and oncological pathology based on generality of risk factors for their emergence.

No doubt that the most cardinal distinctive feature of cancer cells is their embryonicity. Peter Medawar, Nobel Laureate and for long years the Head of Great Britain Medical Research Council, developed the doctrine “on intriguing affinity of embryonic and cancer cells”.

Producing embryonic proteins peculiar for normal intrauterine development, malignant cells imitate the fetus, towards which the organism due to still entirely unrevealed reasons expresses “the maximal immunological most-favoured status”. In other words, the insidiousness of a cancer cell is that in its fight for existence it “deceives”, disorients the human immune system.

The subject of our over 20-year-long research was to find out how to level the mentioned feature of a cancer cell, to render it harmless at the rudimentary stage, to exclude tolerance towards the malignant growth. The activity in this direction brought forth the design of embryonic anti-tumour modulator (EATM). Upon preliminary administration to animals exposed to strong carcinogenic action EATM prevented origination of malignant tumours.

The ultimate safety of EATM was proved by us in strictly controlled and manifold repeated experiments performed in compliance with the requirements of the former USSR Pharmacological Committee, Russian Federation Agency on Medicines Safety and GLP. EATM is composed of a wide pool of protein bodies isolated exceptionally from normal embryonic substances in a state maximum close to the native one (Russian Federation patent No. 2240840 “Embryonic anti-tumour modulator of Mkrtchyan, mode of extraction and application”). We especially emphasize it, as therapeutic anti-cancer vaccines developed in Western countries present themselves modified and hybridized live cancer cells that, to our mind, is not entirely safe or secure. And the most important: the hopes for anti-recessive and anti-metastatic action of vaccines never came true. Therapeutic vaccines became only an addition to

existing methods of the treatment complex.

Without going into details of fundamental problems of preventive oncology we tried to endow it with practical direction: through creation of an immunomodulator of embryonic genesis to be applied in extremely low doses once a year by adults and elderly of a high oncological risk group (pre-cancerous pathology, heavy smokers, family inclination /susceptibility to cancer, etc.). We tried to supply the key links of anti-tumour protection, to exercise pressing over mutant cells permanently formed after the age of 40 as potentially cancer cells. In many of its parameters EATM becomes similar to anti-cancer preventive vaccine.

It is gratifying to mention that outstanding scholars in the area of medicine and health protection set their face to the idea of preventive medicine. M.I. Davydov, President of Russian Academy of Medical Sciences and Head of N.N. Blokhin Scientific Center of Oncology, as well as other scientists note that “prevention should take its eligible leading place in the system of public health of our country; and at last we should acknowledge the first-priority of prevention and pass from declarations to activity” (Herald of Russian Academy of Medical Sciences, 2007, No. 2).

Under conditions of present-day total aggravation of ecology the mere propaganda of a healthy life-style (though in civilized countries it has the rank of a state policy) cannot moderate the unprecedented outburst of oncology prevalence.

Malignant neoplasms became the most important social problems. Leaders of the states when addressing human health protection more and more insistently call upon strengthening the fight against the most wide-spread diseases. And this is quite clear as year in year out there is an increase of morbidity relevant to cardiovascular and oncological pathology, some other unmanageable, incurable diseases; the number of incompletely treated patients is growing. For example, in Russia the average life-span of men is 16 years shorter than in Western Europe. V.V. Putin during his stay as a President of Russian Federation

noted that “it is necessary to retrieve, revitalize the advanced traditions of Russian therapeutic schools: preventive health care”. S.A. Sargsyan, President of the Republic of Armenia, in another context declared from the rostrum of United Nations that prevention is always more preferable than treatment.

Unfortunately, the unhealthy corporate interests exist in medicine as well. The industry of pharmaceuticals has its adjusted system for lobbying. The pharmaceutical institutions system, pharmacies are overflowed by production of chemical-and-pharmaceutical companies. Though “monsters” will dislike this statement, but I cannot but mention that both foreign and our Armenian specialists of pharmacotherapeutical and toxicological profile summon upon design and development of new more strict approaches to quality control over medicines.

During millenaries metabolic and trophic processes in humans “crystallized out” and it is not always that they allow the abrupt intervention into natural processes, as it is fraught with unpredictable consequences. From ethical considerations, I shall not mention widely used tablet-form anti-cancer preparation, the instruction of which embraces a long list of complications in almost all organs and systems, and finally even informs about the possibility of myocardial infarction and sudden death. And this is alongside with high selectivity of the preparation as it is metabolized only in tumour tissue.

In many countries there is an established production of analogs of existing medicinal preparations, the so-called generics, as well as medicinal “bastards”, which require more serious certification. As a rule, the quality of these means is compensated by attractive packaging. Certain chemiopreparations, antibiotics, hormonal substances are immunodepressants and mutagens as well. “We are already walking on the razor's edge”. Therefore, there is an opinion that to a certain degree cancer is a “hand-made product”, including hands of medical doctors.

The above-mentioned supports an idea that biologically active substances, which are applied

for prophylaxis of human health, are more preferable. The methodic guidelines issued under the aegis of Ministry of Health of the Russian Federation and Russian Academy of Medical Sciences (2003) stated that prevention of malignant tumours should be done exceptionally by biologically active substances and not by chemiopreparations. One should hardly argue this statement, even in case of “bona fide misunderstanding”. But the fact remains that tumour prevention is within the frames of educational measures and is the Cinderella in medicine. (I do not refer to clinical oncology, as it is the prerogative of primary health care).

The present-day realia are such that only the propaganda of a healthy life-style, timely revealing of pre-cancerous pathology and other actions (in civilized countries they all have the rank of a state policy) cannot sooth the unprecedented outbreak of oncology related morbidity. It is necessary to work-out scientifically grounded and harmless forms to compensate the weakened anti-cancer resistance of humans.

One of such approaches is implementation of embryonic anti-tumour modulator (EATM) that is available in liniment and injection forms into practice of primary medical institutions. It should be emphasized anew that this is a biologically active compound that contains no chemical, hormonal or other additives. One injection in

case of a strong carcinogenic exposure under experiment conditions prevents the origination of malignant tumours more than by 40%. EATM is also endowed with a certain accessory influence: in oncology patients it prolongs remission obtained due to chemiotherapeutic means.

In 1998 the Agency for medicines and medicinal technologies of the Ministry of Health of the Republic of Armenia issued a Temporary Pharmacopoeia Article No. 13-52-98, which allowed to test EATM in a limited cohort of high oncological risk. Medical scientists were also provided with EATM for preventive use. The limited cohort size and lack of certification did not allow to extend the clinical trials. However, we should like to mention that no case of oncopathology originated during 10 years.

We consider it is time for differentiated approach to promotion with chemiopreparations and biologically active substances the complete harmfulness of which was proved. The injection form cannot be an alternative, as the majority of poisons are of plant origin and are applied orally. Therefore, the necessity proceeds to re-consider the established traditions, to overcome administrative obstacles on the way of removing superfluous formalities and to pave the way from scientific discovery to its practical implementation making it shorter. Moreover, when the matter is prevention of malignant tumours.

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