

HISTORY OF ONCOLOGY

Electromagnetic machines in cancer treatment: The “Priore affair”

Marianna Karamanou¹, Theodore G. Papaioannou², Gregory Tsoucalas¹, Konstantinos Laios¹, George Androutsos¹

¹Department of History of Medicine, Medical School, University of Athens, Athens; ²Biomedical Engineering Unit, 1st Department of Cardiology, Hippokration Hospital, Medical School, National and Kapodistrian University of Athens, Athens, Greece

Summary

In the 1960s and 1970s the Italian born scientist Antonio Priore, working in France, amazed the public and divided the scientific world with his invention, a machine which could cure a variety of illnesses, including cancer. Gaining the support of the French government and several scientific organizations, Priore received a great amount of money in funds to sustain his research. Without exposing his exact

method, the scientific world questioned the legitimacy of Priore's research. For almost two decades scientists, institutes, journalists and cancer patients were implicated in a sensational case, known as the “Priore affair”.

Key words: Antonio Priore, biomedical engineering, electromagnetism, history of oncology

Introduction

In the 19th century the public and scientific enthusiasm for electricity was so great that many came to believe that electricity could be a panacea. From the cure of lymphoedema to nasal polyps reported by the distinguished surgeon Auguste Nélaton (1807-1873) during his speech in the French Academy of Sciences, electricity seemed to have several possible applications in medicine [1].

In 1928, the French electrical engineer and biologist Charles Laville (1877-1959) supported that cell was an electrical engine and cancer an electromagnetic disturbance of the cell pointing out the significance of electro negativity in biology [2].

Twenty five years later, the Italian born scientist Antonio Priore (1912-1983) claimed that he developed a machine that was producing various types of electromagnetic fields and could be used in the treatment of cancer. A disputable case also known as the “Priore affair” just begun.

From Priore's vegetables to Priore's machine

Antonio Priore was born at Cerignola Italy in 1912. He graduated from a school of electricity in Trieste and during WW II served in the Italian Navy as radar operator [3]. In 1943, he was transferred by German authorities to BETASOM submarine base which was established by the Italian army at Bordeaux, France as part of the Axis anti-shipping campaign. During that period, Priore started to conduct experiments on the conservation of fruits and vegetables and he noticed that some oranges, left beside a piece of electrical equipment, remained fresh, while others nearby were rotten. The results of these experiments became his obsession. Some weeks before Liberation, Priore realized that he would be killed and escaped thanks to a French commissionaire. Joining the French resistance movement, he participated to the fight for Liberation making also some

important friendships in military and political circles such as Jacques Chaban-Delmas (1915-2000), the later Mayor of Bordeaux and Prime Minister [4].

After the end of the war, he settled at Bordeaux and worked initially as a projectionist and radio repairman, experimenting, in his free time, on electricity applications and his main obsession: to build an apparatus capable to preserve food, using a mixture of electromagnetic frequencies. Being self taught and enthusiast Priore was continuously fixed on a certain idea, searching for its immediate application. Dr Marfaing reports Priore's results during 1948-1950: "Once at night he called me: he was dancing with excitement and showed me a perfectly preserved piece of meat» [3]. The apparatus that he built was able to kill the mould that was the origin of rotting. He multiplies the tests on meat at the abattoir of Bordeaux treating also animals with cancerous lesions on the nipple area. During these experiments Priore noticed that after irradiation with his machine, cancerous lesions had a positive electromagnetic response while injured lesions remained unaffected [4].

A new fixed idea then arose: the experiment on humans and the treatment of an incurable for that time disease, cancer. Winning the support of the government Priore received an important fund to pursue his experiments on humans. In 1958, Professor Biraben and Dr. Delmon from Bergonié Foundation (an anticancer center) became interested in this new apparatus. They obtained some rats grafted with T-8 experimental tumors and subjected them to "Priore's ray". Surprisingly, the invincible T-8 tumor reduced significantly in volume. Professor Guérin, the "inventor" of T-8 tumors sent his assistant Professor Marcel René Rivière to Bordeaux to repeat the experiments [5]. The obtained results were also impressive and Rivière reported the experiment to Robert Courrier (1895-1986), one of the founders of reproductive endocrinology and perpetual secretary of the French Academy of Sciences. In 1964 a note was sent to the Academy mentioning: "Effect of electromagnetic fields on T8 tumors grafted on rats: Rats with a T8 tumor were submitted to electromagnetic fields at various stages of development of the graft. When the doses were sufficiently high, a complete regression of the tumor was observed as well as a total disappearance of the metastases that usually accompany it" [5].

Courrier was involved in this case and he asked for funding from various French organiza-

tions responsible for the administration of scientific projects. He also asked from an immunologist and leading world parasitologist at the time, Professor Raymond Pautrizel (1916-2000) to help. The results as they were mentioned in Courrier's speech were impressive: "I sent to Bordeaux 18 rats grafted with lymphosarcoma on 25 January 1965. 10 control rats, 4 rats exposed 1 hour a day and 4 rats exposed 2 hours a day. It is difficult to use more than 8 rats at a time because you can place only 2 of them at the same time under the apparatus. The experiment represented 6 hours of exposure each day. It started on 30 January. My assistant was the only person to touch the animals during the experiment. These animals spent the night in locked cages located in the laboratory of Professor Pautrizel at the medical school. The 8 experimental rats were placed in the machine and were constantly watched by my assistant, Mrs Collonge. Results: Beginning of the experiment on 30 January. Fifteen days after the graft, the last control rat dies. None survive. On 18 February, 19 days after the graft, the last of the 4 rats those were exposed 1 hour per day dies. None survive. On the contrary, the 4 rats that had been exposed 2 hours a day are in good health" [5,6].

However Pautrizel decided to lead the research in another direction and experimented in animals in the treatment of Trypanosomiasis (sleeping sickness). Rats were inoculated with *Trypanosoma equiperdum*. Control animals died by the 5th day. Rats exposed daily to Priore's machine survived with complete disappearance of the parasite from their organisms developing also a specific immunity to further infection [7] (Photo 1).

Academicians were divided in two parts: pros and cons. On the one part the favorable results of the experiments but on the other part a too complicated apparatus, Priore's enigmatic personality and deny or difficulty to explain the machine's



Photo 1. From left to right: Antoine Priore, Robert Courrier, Raymond Pautrizel and Francis Berlureau.

mechanism, several physicists who examined it and could not understand how it was working and the contradictory reception of the data by various academics [3].

Moreover new supporters of Priore's theory were attracted, among them Andre Lwoff (1902-1994), the 1965 Nobel Prize winner for medicine. Lwoff collaborated with Dr. Stratis Avrameas (1930-), research director in CNRS, conducted a research that remained secretly kept [4].

In 1977 Professor Georges Dubourg experimented in the treatment of terminal cancer patients whose chemotherapy and/or conventional radiation did not succeed. One of them was cured while the others lived much longer than predicted. The results were submitted to the French Academy of Medicine for publication but the communication was rejected [4].

Antoine Priore died on May 9th 1983 without any scientific recognition of his work. Since nobody else knew how to operate his machine, further research ceased. According to Alain Rousset, at that time director in the office of the President of Aquitaine Region the problem was that Priore never wished to implicate in official protocols [8]. The mode of action of his "waves" was finally kept secret. In 1974 in a TV interview Priore mentioned concerning the way his machine works: "It is too complex, too complicated and it is impossible to learn it from a day to another" [3].

After Priore's death a research program was conducted by the University of Bordeaux in an attempt to demystify the apparatus resulting in failure to obtain therapeutic effect.

Discussion-Conclusion

It was said that Priore's machine was a huge two floors apparatus weighed 50 tons comprising: a large plasma tube excited by 430 V, a magnetron oscillator (9.4 Ghz, 40 Kw peak), which pulsed on for 1 microsecond at a rate of 1 Khz, two high frequency oscillators (17.6 Mhz and 15.8 Mhz) and a magnetic field (1200 G) which confines the plasma and which is pulsed at a rate of 50 times per minute. The magnetic field at the table, where the subject was located, was about 600 G. A second machine was also built which was capable of pro-

ducing an active magnetic field of about 1200 G [9] (Photo 2).

Several hypotheses exist concerning the way the machine was working. It was theorized that it could stimulate the intercellular activity, increasing the electroporosity of cells, enhancing thus its exchange materials and increasing the metabolism.

According to Dr. Bernard Murzeau, former pupil of Professor Pautrizel and expert on the apparatus, the pulsed electric fields emitted by the machine have a determining effect [10].

In 1971, CNRS engineers analyzed the radiation of the apparatus and listed the detected frequencies, including pulsed magnetic fields at very low frequency, high frequency (17 MHz) and ultrahigh frequency (17-20 GHz). Apart from the light, during the spectrographic analysis of the plasma bulb located in the center of the apparatus, they did not find anything else. However, when they tried to operate the device without the lamp, they obtained the same effects as in a microwave oven [8].

Refusing constantly to explain in detail the constructive plan and the settings of the apparatus, Priore condemned his own invention. Nobody succeeded to reproduce in a standardized way the therapeutic results. A cancer fraud or an apparatus with therapeutic abilities? Priore's machine still remains a mystery.

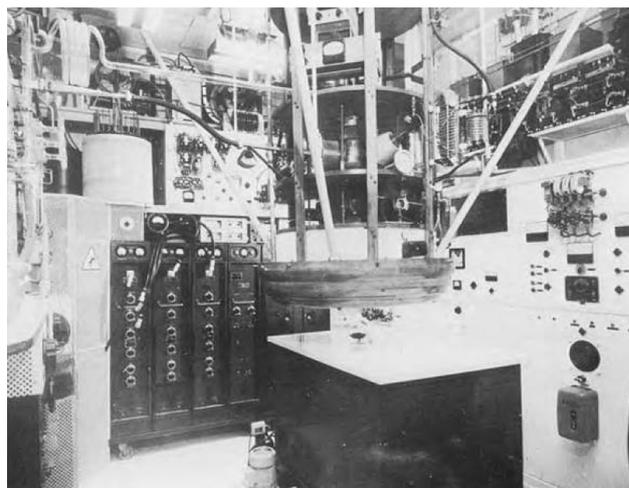


Photo 2. The Priore machine.

References

1. Velpeau A, Nélaton A, Denonvilliers C et al. Rapport sur les progrès de la chirurgie. Paris, Impr. impériale, 1867, p 31.
2. Laville C. Le Cancer, le dérangement électrique. Paris, Editions Laville, 1928.
3. Bonnet X. Le rayon qui « guérissait le cancer » : l'affaire Priore. In : Foucault D (Ed) : Lutter contre le cancer (1740-1960). Paris, Privat, 2012, pp 435-447.
4. Graille JM. Dossier Priore. Une nouvelle affaire Pasteur? Paris, Denoël, 1984.
5. Schiff M. The memory of water: homoeopathy and the battle of ideas in the new science. London, Thorson/HarperCollins, 1995.
6. Riviere MR, Priore A, Berlureau et al. Phenomena of regression observed on grafts of a lymphosarcoma in mice exposed to electromagnetic fields. C R Hebd Seances Acad Sci 1965;260:2639-2643.
7. Pautrizel R, Mattern P, Pautrizel AN, Priore A. Effect of magnetic fields and modulated electromagnetic waves on experimental trypanosomiasis. Ann Soc Belg Med Trop 1977;57:501-524.
8. Ducoeurjoly P. Faut-il réhabiliter Priore? Nexus 2010;69:54-59.
9. Bateman JB. A biologically active combination of modulated magnetic and microwave fields: The Priore Machine. Office of Naval Research, London, Report R-5-78, Aug. 16, 1978.
10. Murzeau B. La fantastique histoire d'Antoine Priore. In <http://www.priore-cancer.com> accessed on 20th May 2015.