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EDITORIAL

History of cochlear implants[☆]



História dos implantes cocleares

After finishing my internship at Washington University in Saint Louis, I have been several times in Los Angeles with the House Group. It was there where I learned to operate acoustic nerve tumors and perform endolymphatic sac surgery. But, interestingly, I first heard about cochlear implants during an Auditory Canal Transtemporal Microsurgery International Course coordinated by Prof. Ugo Fisch, in 1972. After this meeting, some participants traveled to the picturesque village of Burgenstock for a post-congress tour.

One morning, Ugo took us to a small room in which Dr. William House showed us a film about the making of a cochlear implant and a few steps of the patient's rehabilitation (I exhibited this movie at the symposium we held in November 2007 to celebrate 30 years of the first implant performed in Brazil; the odd thing is that Bill House had forgotten the existence of this film...).

I was fascinated with this presentation. During my three years in Saint Louis, I have been always near the Central Institute for the Deaf and had contact not only with audiologists and neurophysiologists, but with deaf children as well. Perhaps this was the reason for my immediate interest in implants. I was sure that these experiments represented the starting point to a new era of Otology. Afterwards, I was given the opportunity to watch some surgeries in Los Angeles.

In May 1976, Bill came to Brazil for the First Symposium of Neuro-Sensory Deafness and Cochlear Implants, held at the Albert Einstein Hospital. At that time he had already performed 15 implants and told us about creating other cochlear implant centers in the United States and other countries.

In February 1977, the 1st International Conference on Cochlear Implants was held in Los Angeles. Otologists interested in performing implants were invited to attend this meeting; but in accordance with US law, the otologist should

be accompanied by a full team of collaborators; otherwise he/she would be considered only as an observer. There were about 20 otologists, but only six teams. My team included Dr. Chih Chao Chun (Electronic Engineer), Marlene Mangabeira Albernaz (Audiologist) and Eva Ocougne (Psychologist). The presence of an engineer was critical, because the adjustments were made with an oscilloscope, considering that there was no computer interface at that time. In addition, we had the device circuit, and Dr. Chao tried to build an external unit here in São Paulo, but the components that he could get at that time were too large.

We brought back the first Sigma system implantable unit, which had been used to operate our first four patients. Afterwards, this system was replaced by 3M/House system. And then, came the Nucleus, MedEl, Advanced Bionics, All-Hear, Neurelec... Our first patient was operated in October 1977 at Hospital Israelita Albert Einstein. It was the second implant to be performed outside the United States. I must mention the participation of Yotaka Fukuda in all my implants, until an aggressive disease and his untimely death prevented him from being at my side.

In 1981, I published, along with Yotaka Fukuda, Mauricio Ganança, Marlene Mangabeira Albernaz, Sonia Chiarella, Eva Ocougne, Leni Balaban Sasson and Chih Chun Chao, a monograph describing how cochlear implants were made at that time, and addressing our first two patients. Pedro Bloch, a very special friend, was thrilled with the implants, and graciously wrote a beautiful preface for us. Otology has a history of opposition to progression. The fenestration operation was violently condemned by many, including here in Brazil. The same happened with stapedectomy and tumors of the acoustic nerve.

The opposition to implants was particularly strong. Accustomed to audiological results of tympanoplasties and stapedectomies, our otologists believed that the degree of discrimination achieved with the implant did not warrant this surgery. It turns out that, at that time, most otologists had very little contact with profound deafness. Bill House received numerous requests from doctors and companies to abandon his project of implant use, something that had

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already happened when he began to operate acoustic nerve tumors.

I also suffered a great deal of opposition here in Brazil, when I started the implants' program at Escola Paulista de Medicina, even from physicians who are currently leading groups in implant surgery.

It is clear that cochlear implants have been continually improved, but even the first implants we used greatly improved the quality of life of its users. The University of Iowa conducted a survey on the quality of life of patients implanted with the early implants and concluded that these patients achieved real benefits from their use. Profound deafness is the most disabling of human diseases; thus, anything we can do to relieve it would represent a great help. That is why oftentimes patients who achieve relatively poor results with the implant may feel much benefited.

The use of implants in children is particularly important, because these devices reduce the hardships in language acquisition.

These procedures are important, so that deaf children have the opportunity to study in regular schools, integrating them into the community of listeners.

Today, implants are an integral part of Otology. Our country has already many centers, with dedicated doctors and audiologists. Certainly, their use represents an extraordinary progress. But each breakthrough advance needs a starting point, and Bill House was the man who had the courage to make this thing happen.

Conflicts of interest

The author declares no conflicts of interest.

Pedro Luiz Mangabeira Albernaz^{a,b}

^a *Escola Paulista de Medicina, Universidade Federal Paulista (EPM-UNIFESP), São Paulo, SP, Brazil*

^b *Hospital Israelita Albert Einstein, São Paulo, SP, Brazil*

E-mail: plmalbernaz@uol.com.br