

Homage to Dr. Zephirino Alves do Amaral on the Occasion of the First Centennial of the Introduction of Intravenous Regional Anesthesia in Brazil (1911-2011)

To the Editor,

In this year of 2011 we celebrate the centennial of the introduction of Regional Intravenous Anesthesia (Irmandade da Santa Casa de Misericórdia de São Paulo) in our country. Remembering that landmark moment in Brazilian Anesthesiology, we believe a brief description of the personal, family, school, professional, political, didactic, scientific, and beneficent history of the person responsible for this realization, Dr. Zephirino Alves do Amaral, is warranted as a small tribute to this great Brazilian physician. In reality, maintaining alive the history of Medicine of a country is always very important, and this is another reason for this letter.

First, note that his name is Dr. Zephirino Alves do Amaral as it is written in his original publication¹ and on a book we published, and not Zeferino how it appears in several publications maybe due to the orthographic reform.

Dr. Zephirino Alves do Amaral was born in São João do Atibaia, currently Atibaia/SP, on November 30, 1887. He attended Colégio de Itu in São Paulo and posteriorly he went to Paris for his humanities studies. Upon returning to Brazil, he enrolled at the medical course of the Faculdade de Medicina da Bahia, where he was a colleague of Celestino Bourroul, Enjolras Vampré, and other important names for the Brazilian Medicine. He finished his medical studies at Faculdade de Medicina do Rio de Janeiro (Praia Vermelha) in 1908. In his medical doctorate thesis, he described for the first time in Brazil a case of cervicofacial actinomycosis (1908), even before other cases were reported by Adolfo Lutz, Aguiar Pupo, Licínio Dutra, Floriano de Almeida, and others².

To specialize in surgery, Dr. Zephirino went to Germany where he heard of the studies of August Karl Gustav Bier, one of the greatest European surgeons of that time and creator of spinal anesthesia and intravenous regional anesthesia, to whom we have paid homage in a prior publication at the time of the first centennial of the creation of the former technique³.

Upon returning to Brazil, Dr. Zephirino initiated his professional life in the city of Bragança Paulista/SP. In 1910 he moved to São Paulo/SP and started working at the Central Hospital of Irmandade da Santa Casa de Misericórdia to which he dedicated his professional life, including as the chief of the Second Male Infirmary for several decades. I met him at this infirmary where I also spent my brief surgical practice. In his private clinic, he joined surgical technique to scientific knowledge and kindness of heart, especially to the poor.



Figure 1 – Dr. Zephirino Alves do Amaral, who Introduced Intravenous Regional Anesthesia in Brazil.

The material, procedures, and other details he recommended in his initial description of the technique are curious¹, most of them completely different from those that are currently considered correct. For example, “as all local anesthetics, it is not to be used in children younger than 13 years old”. “Three elastic bandages, two with 2 meters and the third one with 6 meters of length, all with 6 to 8 cm wide, are required”. The last one would be for exsanguination and the first two for garroting the limb; it was recommended that after proximal garroting the wider bandage should be removed “from the periphery on...”. “In the space between the bandage on the base of the arm and the ischemic part, in an extension never below 5 cm nor greater than 30 cm, a third bandage should be applied.” For disinfection of the limb, which should be carefully done, alcohol-phormaline solution at ½ per 100 should be applied through friction with a cotton ball on a clamp during five minutes”. About the vein: “In surgeries of the radius, one should use the cephalic vein,

while in surgeries of the ulna, the basilic vein; on the leg, one should use the great saphenous vein". To "find" the vein, after local anesthesia, "one should make a skin incision, transversal to the vein one wants to use; once one finds the vein, a ligation should be applied above, close to the bandage that guarantees ischemia of the arm, and below, one should apply a suture that will be used to fix the needle to the vein, which is opened transversally with the tip of a fine scissors". Volumes of "anesthetizing" solution (procaine, similar to Bier): 50 - 70 mL, for the upper limb, and 70 - 80 mL, for the lower limb. "The anesthetic should be applied towards the periphery; after the injection, the vein is ligated at the tip of the needle and the suture that fixated the needle to the vein is removed". "When one is concerned about intoxication, the central bandage may be removed, making successive decompressions and compressions, with 1-minute intervals, to allow the drug to slowly enter the circulation".

As assistant of Dr. Arnaldo Vieira de Carvalho, director of the Vaccination Institute (1892), clinical director of Santa Casa de Misericórdia (1894), founder and first director of the Faculdade de Medicina e Cirurgia de São Paulo (1913), currently Faculdade de Medicina da USP, Dr. Zephirino Alves do Amaral was part of the teaching staff of the First Medical Clinics (Gynecology Clinic) of that medical school, where he taught Obstetrics and Surgery ⁴.

He was president of the Sociedade de Medicina e Cirurgia de São Paulo and state senator (1928-1930 legislation) for the Partido Republicano Paulista (PRP). In his home town, he built and installed a Child Care Clinic and he donated the land for the construction of the Underage Shelter (1945), which was later called Home Dona Mariquinha do Amaral; Atibaia paid homage to him with a bust on the park by the Santa Casa de Misericórdia, a town's hospital, following the example of São Paulo, named a street after him.

Dr. Zephirino had three brothers and was married to D. Evelina Vairo Alves do Amaral, also from Atibaia, with whom he had five children: Claudino, Walter, Vera, Celia, and Lia. He belonged to a well known family. The eldest of his brothers, Dr. Claudino Alves do Amaral, named after Dr. Zephirino's father, was also a physician and great surgeon in São Paulo.

He was charming and funny, with whom I was sociable, and he was married to Glória do Amaral, Dona Glorinha, as she was known. Dr. Zephirino was a close relative of the notable painter Tarsila do Amaral, who died in 1937, at the age of 87 years, and who lived in the house that was the headquarters of the Society of Anesthesiology of the State of São Paulo (SAESP), from 1974 to the beginning of 2010⁵. He had farms in the Atibaia region, close to the Electrical Powerhouse and Alcohol Mill of the Matarazzo family, on way to Bragança Paulista. The Amaral family was friends with the famous sculptor, Victor Brecheret, who was always invited to spend some days in June in the country, with his children.

Dr. Zephirino was an "old school" surgeon and had a large medical knowledge and great clinical experience, at a time when tomography, ultra-sound, magnetic resonance, nor any other important diagnosing method available today did not exist, but for X-rays. I cannot forget one of his brilliant diagnoses of abdominal disease using just his clinical experience. This is how it happened: several physicians, including this author, who was a medical student, surrounded a bedridden patient and palpated, auscultated, and percussed his abdomen, discussing possible diagnostic possibilities when, from behind everyone, a hand appeared and simply palpated the abdomen of the patient; it was Dr. Zephirino who, practically without examining the patient, said: "You are all wrong, the patient has..."

Dr. Zephirino Alves do Amaral died in São Paulo, a few days before his 75th birthday, on November 13, 1962, leaving, besides the introduction of intravenous regional anesthesia in Brazil, several published studies, including on the surgical value of spinal anesthesia, and having rendered good services to Medicine in our country.

*Dr. Almiro dos Reis Júnior, TSA
Anesthesiologist of São Paulo Serviços Médicos de
Anestesia (SMA)
Hospital Alemão Oswaldo Cruz, São Paulo, SP, Brazil.*