Guy H Fontaine, J Clin Case Rep 2016, 6:3(Suppl)
http://dx.doi.org/10.4172/2165-7920.C1.004

3rd Global Experts Meeting on
Medical Case Reports
May 09-10, 2016 New Orleans, USA

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Biography:

Guy H Fontaine has made 15 original contributions in the design and the use of the first cardiac pace makers in the early 60s.He has serendipitously identified ARVD during antiarrhythmic surgery in the early 70s. He has developed the technique of Fulguration to replace surgery in the early 80s. He has been one of the 216 individual who has made a significant contribution to the study of cardiovascular disease since the 14th century and one of the 500 greatest geniuses of the 21th Century (USA Books), one of the 100 life time of achievement (UK Book). He has more than 900 publications including 201 book chapters. He is a Reviewer of 17 scientific journals both in basic and clinical science. He is currently developing new techniques for brain protection in OHCA, stroke and spinal cord injury by hypothermia.

New technique of brain protection by adiabatic expansion of carbon dioxide and first fortuitous clinical case of sudden death at home: 6 minutes of no flow with absolutely no neurologic deficit

The technique of brain protection has started in 2007 after the presentation of the method proposed by a neurologist from Cornell University NY City by evaporation of perfluorocarbon in fossa nasalis. This method was studied on a pig model at the Weil Institute of Cardiac Care Medicine (WICCM) in Rancho Mirage California. I immediately suspected that it was possible to obtain the same result, faster and stronger by expansion of highly compressed gas. After several experiments and discussions with experts it was found that carbon dioxide was the most appropriate gas. This was confirmed on a pig model able to reproduce the work performed at WICCM. It was during this experiment, that my wife experienced sudden cardiac death beside me while watching TV in June 2011. She had no femoral pulse which prompted to perform chest compression. Because of my work on the Fulguration procedure 30 years before, I had a defibrillator in the basement of my house. The third shock proved successful but without return to consciousness. I then used the prototype of a bottle filled with compressed CO^2 used for my experiments. In the following days in La Salpêtrière hospital she had 4 more episodes of VF explained by an old asymptomatic myocardial infarction seen on coronarography. She was able to awake after 6 days of coma and recovered completely without absolutely no brain deficit despite 6 minutes of no flow. She subsequently had an ICD and had two other episodes of syncope in the street before proper pharmacologic therapy. She never had release of troponin demonstrating that the arrhythmia was a pure electric phenomenon. The work made on the pig model suggested that it was possible to cool the brain by the mouth as well as the fossa nasalis. This opened the possibility to create a new device with a CO^2 bottle on top of a tripod with injector in the mouth and make usable in stroke, brain trauma and children hyperthermia. The final device is so simple that it can be used by everybody. The next step is to perform a pilot study of two subgroups of cooled and non-cooled patients.

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