

## EDITORIAL

*The Editorial Board of the Hellenic Journal of Radiology, on the occasion of the 50th anniversary of the first ever CT scan performed, has invited Prof. Gouliamos and Prof. Stingaris to compose a relative Editorial.*

*Prof. Gouliamos and Prof. Stingaris, under the guidance of their mentor Prof. Gregory Pontifex, were the first radiologists back in 1979, who introduced the innovative technology of CT to Greek society.*

## CT IMAGING 50<sup>th</sup> ANNIVERSARY: A Day to remember

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October 1<sup>st</sup>, 2021 marks the 50<sup>th</sup> anniversary from the day the first brain CT performed in Wimbledon, England by radiologist James Ambrose at Atkinson Morley's Hospital in London, UK.

The purpose of this brief note is to remind the major steps in the evolution of Computed Tomography and how this new technology was adapted in Greece. The origin of the word "tomography" is from the Greek word "tomos" meaning "slice" or "section" and "graphe" meaning "drawing."

There are several papers in the literature about the two inventors of CT Sir Godfrey Hounsfield (1919-2004), an English electrical engineer who worked as a radar operator in World War II and later for EMI and Dr. Alan MacLeod Cormack (1924 -1998), a particle physicist with interests in x-ray imaging. They shared the 1979 Nobel Prize for Physiology or Medicine (1). What is not widely known is the hypothesis that The Beatles record sales in the 1960's helped fund the development of the first CT scanner. The following years technical advancements in speed, slice count, radiation dose and image quality gradually transformed

the rotate translate scanners dedicated for head examinations to body CT, electron-beam, spiral (also known as "helical") CT, to multi-detector-row scanners with more than 64-slice capability, wide-coverage CT, dual-source and dual-energy CT. Recently FDA announced the first commercially available photon counting CT scanner. Parallel progress introduced PET-CT fusion imaging, CT perfusion imaging, CT Angiography of coronary arteries, PET-CT for cancer treatment, CT simulation for radiotherapy, Emergency Department CT, low-radiation-dose CT and detailed data sets from CT are used for 3D Printing. Considering how different things were 10 or 20 years ago can we imagine or foresee the advancements in medical technology in the next 10 years? On behalf of the radiological community, we should be thankful to the many pioneers who have made CT during the past half century what is today: a useful tool for depiction of anatomy and pathology for the benefit of millions of patients around the world.

These days a CT exam can take less than 1-2 seconds while 50 years ago, a CT brain exam could take about

25 minutes (the projection data were acquired in approximately 5 minutes, and the tomographic image was reconstructed in approximately 20 minutes) (2).

In Greece we remember with gratitude our mentor Professor Gregory Pontifex who embraced the new technology and offered to us (A. Gouliamos and K. Stringaris) the opportunity to work with him in this project. The first CT scanner in the public sector has been installed in the Department of Radiology Aretaieion University Hospital (Director Professor Gregory Pontifex) in 1979 and one year later in the Department of Radiology of Athens General Hospital (Director Dr. Kyriakos Stringaris). One year later (1980-81) two more CT scanners were installed in Thessaloniki in the Department of Radiology of Agia Sofia Hospital (Director Dr. Stavros Efremidis) and AHEPA Hospital (Director Professor Athanasios Kouskouras). One year earlier two CT scanners were installed in the private sector in Athens. According to the data base of The National Centre of Scientific Research “Demokritos” 484 CT

scanners are installed in the public and private sector in Greece until now.

The first PET-CT has been installed in the Department of Radiology of “Hygeia” Hospital (Director Dr. John Andreou) in 2004. According to the data base of The National Centre of Scientific Research “Demokritos” 15 PET-CT units are installed in the public and private sector in Greece until now.

Relative to the size of their respective populations, the EU Member States with the highest number of CT scans in 2018 included Greece (21 400 scans per 100 000 inhabitants), Portugal (20 500 scans per 100 000 inhabitants; hospitals only), Belgium (20 200 scans per 100 000 inhabitants), Luxembourg and France (both 19 600 scans per 100 000 inhabitants). (3)

The medical community in Greece has adapted successfully the new imaging technologies for the benefit of our patients. The role of the radiologist was redefined as consultant of the clinicians and active member in daily teamwork practice. **R**

## REFERENCES

1. Oransky, Ivan (2004). “Sir Godfrey N Hounsfield”. *The Lancet*. 364 (9439): 1032. doi:10.1016/S0140-6736(04)17049-9.
2. Beckmann EC (2006). “CT scanning the early days”. *The British Journal of Radiology*. 79 (937): 5-8. doi:10.1259/bjr/29444122. PMID 16421398.
3. Eurostat: “Medical technologies - examinations by medical imaging techniques (CT, MRI and PET)” (hlth\_co\_exam) & “Medical technology” (hlth\_rs\_equip)