

Opinion and debate

Nuclear medicine in Spain: High technology 2013[☆]

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ARTICLE INFO

Article history:

Received 20 July 2014

Accepted 23 July 2014

Keywords:

PET

SPECT

Geographic distribution

Antiquity

ABSTRACT

This article details the high technology equipment in Spain obtained through a survey sent to the three main provider companies of equipment installed in Spain. The geographical distribution of High Technology by Autonomous Communities and its antiquity has been analyzed.

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Medicina nuclear en España: alta tecnología 2013

RESUMEN

En este artículo se aportan los datos del equipamiento de alta tecnología en España obtenidos a través de una encuesta enviada a las tres principales compañías que son proveedoras de equipamiento en España. En la misma se analizan la distribución geográfica de la Alta Tecnología por Comunidades Autónomas así como su antigüedad.

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Palabras clave:

PET

SPECT

Distribución geográfica

Antigüedad

Databases of the high technology (HT) available in Nuclear Medicine in Spain [positron emission tomography (PET) and gamma cameras (single photon emission computed tomography (SPECT))] are little known or are questionable. Indeed, there has been no publication on this matter since 2001.¹ On the other hand, these data are of great interest to nuclear physicians and the administration. Therefore, the Executive Committee of the Spanish Society of Nuclear Medicine and Molecular Imaging (SEMNIM) decided to determine the current situation of the PET and SPECT equipment in our country with the main objectives of knowing the national distribution and how long the HT had been in service. Since GE, Siemens and Philips are the main companies producing, commercializing and distributing gamma cameras and PET scanners in Spain, they were asked to collaborate by filling in an Excel sheet with very specific, freely interpreted data, maintaining the

confidentiality of the data provided. We are grateful to these three companies for their collaboration.

This article presents the data obtained, by Autonomous Community (AC), of the equipment in place as of December 31, 2013.

On the other hand, a survey sent to the Presidents of the Autonomous Societies and Departments of Nuclear Medicine is currently pending receipt and analysis. This survey will provide global data related to the personnel, teaching, radiotracers, number of rooms for metabolic therapy, total number of studies performed and per organ systems and the costs of radiotracers in 2011–2013 (the latter data provided by the radiotracer industry). Data related to department structure will also be analyzed.

Data related to radioguided surgery, PET-MR, PET breast scans, or other equipment used in Nuclear Medicine including dose calibrators, radiation detectors, radioactive markers, point sources, etc. were not included.

In relation to the questionable data mentioned at the beginning of this article we are basically referring to the data published at the web site of the Ministry of Health, Social Services and Equality (MSSSI) using the search item High Technology Equipment by AC.² Data on equipment considered as HT are periodically published at this web site (Table 1). Nonetheless, these data are not particularly sound since there do not seem to be any general criteria for all the

[☆] Please cite this article as: Soriano Castrejón AM, Prats Rivera E, Alonso Farto JC, Vallejo Casas JA, Rodríguez Gasen A, Setoain Perego J, et al. Medicina nuclear en España: alta tecnología 2013. Rev Esp Med Nucl Imagen Mol. 2014;33:378–381.

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Table 1

High technology equipment available by autonomous community (current data of the ministry of health) and data of the SEMNIM (orange).

| Autonomous community | GAM | SPECT | PET | SPECT/SPECT-TAC | PET-PET-TAC |
|-------------------------|-----|-------|-----|-----------------|-------------|
| Andalusia | 33 | 11 | 2 | 44 | 12 |
| Aragón | 5 | 4 | 1 | 7 | 3 |
| Prin. of Asturias | 3 | 0 | 1 | 5 | 3 |
| Balearic Islands | 7 | 3 | 2 | 7 | 2 |
| Canary Islands | 11 | 4 | 3 | 13 | 2 |
| Cantabria | 0 | 3 | 1 | 3 | 1 |
| Castilla-La Mancha | 6 | 2 | 1 | 13 | 2 |
| Castilla and León | 12 | 2 | 0 | 6 | 1 |
| Catalonia | 43 | 0 | 7 | 52 | 14 |
| Community of Valenciana | 27 | 8 | 12 | 29 | 10 |
| Extremadura | 1 | 4 | 1 | 5 | 1 |
| Galicia | 13 | 7 | 3 | 11 | 3 |
| Madrid | 34 | 16 | 16 | 41 | 18 |
| Region of Murcia | 2 | 5 | 2 | 4 | 2 |
| C. Foral Navarra | 2 | 2 | 2 | 4 | 2 |
| Basque Country | 13 | 2 | 4 | 13 | 5 |
| La Rioja | 2 | 2 | 1 | 1 | 1 |
| Ceuta | 0 | 0 | 0 | 0 | 0 |
| Melilla | 0 | 0 | 0 | 0 | 0 |
| National total | 214 | 75 | 59 | 258 | 82 |

Modified from Ref. 2. Data of the equipment per autonomous community and national total.

GAM, gamma camera; SPECT, single photon emission computed tomography; SPECT/SPECT-CT, gamma cameras, SPECT and SPECT-CT SEMNIM survey. PET, positron emission tomography; PET-PET-CT, PET and PET-CT SEMNIM survey. The gamma camera data in Catalonia include SPECT.

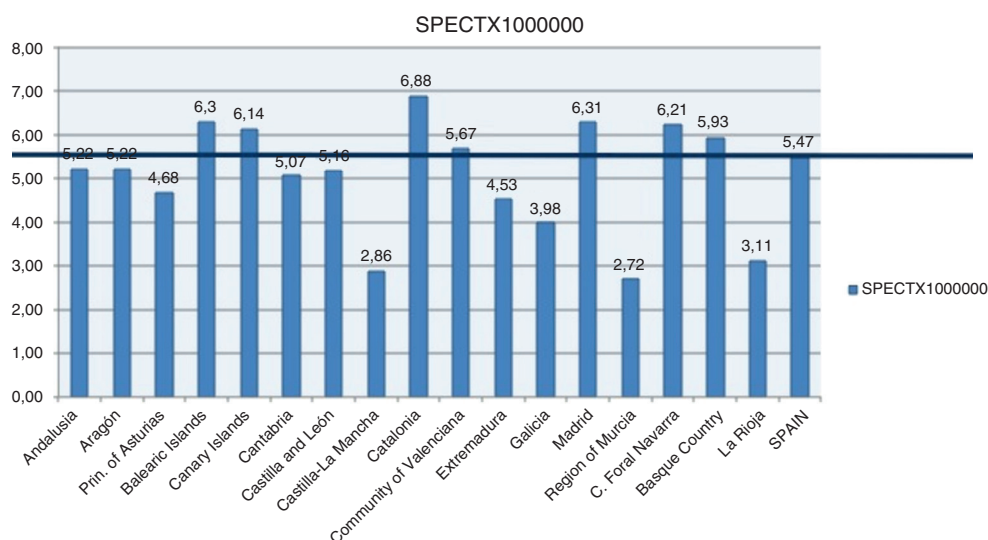
AC as can be seen in Table 1 and Figs. 1 and 2 in which the data provided in the column from the SEMNIM survey do not coincide with the data provided by the companies producing and commercializing the equipment considered as HT. In fact, according to the Ministry the gamma camera and SPECT park consist of 257 gamma cameras and 82 PET scanners. On the other hand, in the online publication of the MSSSI there are no uniform criteria. Gamma cameras are named, and SPECT equipment is included in this section in a column which does not differentiate whether they are SPECT or SPECT-CT scanners. The AC of Catalonia is a clear example in which SPECT scanners are included in the gamma camera column. Neither are the PET scanners differentiated as PET or PET-CT. One important defect of this publication is that it does not specify how long ago the HT base was installed and, of course, neither the needs nor the planning is mentioned, both of which are important data for us and should be demanded from all the ACs by the MSSSI.

At a world level we can find no official data showing the availability or the length of service of the HT by countries. It is also true that there are no regulations or international norms related

to criteria of obsolescence and the need for replacement, both of which are fundamental aspects for provision planning. On reviewing the literature we found that there are only recommendations from the manufacturers about equipment depreciation and half life. This is clearly a very complex matter that requires an effort on behalf of all the parties involved: patients, nuclear physicians, management teams, as well as the industry and administration in order to define the criteria of obsolescence or “end-of-life” of the equipment, its replacement and the acquisition of new technology.

The first objective of the present article was to determine the distribution of HT in our country, and on analyzing the data provided we found evident disparities and, consequently, a lack of planning criteria in the introduction of HT in Nuclear Medicine in the ACs. The second objective was to assess the length of service of the equipment and the need for replacement in the Departments of Nuclear Medicine in Spain.

Table 1 and Figs. 1 and 2 clearly depict the disparity in the distribution of HT in Spain, reflecting an absence of planning on behalf of our health care system. It is true that the private sector

**Fig. 1.** SPECT and SPECT-CT equipment per million inhabitants in Spain by autonomous community.

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