CURRENT STATUS AND PERSPECTIVES OF CYCLOTRONS FACILITIES IN BRAZIL AND THE SOCIOECONOMIC IMPACT

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In Brazil, as has been occurring worldwide, the number of procedures using radiopharmaceuticals is increasing. The production and selling of short half-life radioisotopes used to be a monopoly of the Brazilian Government. In 2006, a Constitutional Amendment revoked the state monopoly due to the need for the use of short half-life radioisotopes in nuclear medicine centers very far from the government production facilities. This study aims to describe the current status and perspectives of cyclotron facilities in Brazil and discuss the socioeconomic impact.

Currently, there are 17 cyclotrons facilities for medical radioisotope production in Brazil. Of which 13 are operating, 3 are under construction, 1 started the decommissioning process. There is a lot of equipment concentrated in the Southeast and no cyclotrons operating in the Northern part of the country. The other socioeconomic impact is the same concentrations of nuclear medicine centers in the Southeast, which hinders the access of the population from more distant regions to the treatments available in the nuclear medicine centers.

There are 4 cyclotrons located inside the university's campuses with a focus on research and development, but also to meet the demand for nuclear medicine in the region. Due to the high cost of these installations, the hybrid model, with research development and commercial focus, has been applied in Brazil.

Most cyclotrons facilities are dedicated to 18F-FDG or 18F-PSMA production, but a few facilities are producing other radioisotopes such as 11C, 68Ga, and 123I. The facilities are investing in moderns equipment and approaches looking to improve the development of new radiopharmaceuticals in Brazil. With this objective, many facilities maintain research agreements with universities with a focus on training new professionals and developing new molecules.

The perspective for the future is the increase in the number of cyclotrons aiming to serve the most distant regions and expanding the nuclear medicine in the country through the development of new radiopharmaceuticals.

REFERENCES

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