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Managing of acid waste in haemodialysis: an opportunity to reduce environmental impact

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The treatment of chronic kidney disease through haemodialysis is an undeniable therapeutic advance that has improved the survival of millions of patients worldwide[1]. However, like any healthcare activity, its environmental cost is a reality the sector can no longer ignore. The production, distribution, and disposal of materials used in each haemodialysis session generate a considerable carbon footprint, in addition to other negative environmental effects, such as water eutrophication and non-renewable energy consumption[2].

One of the less explored factors, yet with a significant environmental impact, is the type of container used to transport dialysis acid. Recent results from a multicentre study conducted in 15 haemodialysis centres of *Fundación Renal Española* have provided clear data on the environmental footprint of different container formats: 3.9 L plastic jerrycans, 4.2 L bags, and 300 and 600 L tanks[3]. The data show that jerrycans have the highest carbon footprint, followed by bags, while tanks offer the best performance in terms of environmental sustainability.

The life cycle analysis (LCA) performed in this study revealed that the primary contributing factor to the carbon footprint is the production and disposal of the containers. Jerrycans, for example, require five times more plastic than bags and, at the end of their useful life, generate more waste that needs to be treated, thus increasing greenhouse gas emissions. Conversely, tanks, by allowing for more efficient resource use and generating less waste per treatment, represent a more sustainable alternative, according to the study's findings.

These results highlight a real opportunity to improve the sustainability of haemodialysis through strategic decisions in material procurement and use. Adopting centralised systems (tanks) would not only reduce the environmental footprint but could also simplify logistics and lessen the workload for healthcare staff. However, implementing these solutions entails an initial infrastructure investment that must be weighed against the long-term environmental and operational benefits.

Green nephrology isn't merely a trend, but a necessity to ensure that therapeutic advancements in treating chronic kidney failure are compatible with environmental preservation[4]. Scientific evidence indicates that choosing more sustainable containers is a decisive step in this direction. Now, the responsibility falls on institutions and professionals to translate these findings into concrete decisions that contribute to a more planet-friendly haemodialysis. Nevertheless, while environmental impact should be considered a key factor when selecting an option, it's crucial to maintain a realistic approach and seek the right balance, prioritising solutions that, in addition to being sustainable, are also economically viable.

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