Letter to the Editor

Hyperbaric medicine and climate footprint

The world is going through a vicious circle. The current climate crisis negatively impacts population health. And heath care contributes to aggravate the climate crisis. The 2019 Health Care Without Harm reports that the climate footprint of the healthcare sector represents 4.4% of global net emissions, i.e., the equivalent of 2 gigatons of carbon dioxide (CO_2) annually.[1]

Several healthcare fields have already taken actions. For example, anaesthesiology is already moving towards a more ecological vision of healthcare, and notably reduced or eliminated the most detrimental anaesthetic gases.[2] The hyperbaric medicine specialty has yet to embrace this movement. In this letter, we describe the process and results of an intervention aimed at reducing plastic waste at a hyperbaric medicine center in a large university hospital. Through this simple and effective example, we would like to encourage each hyperbaric medicine center to take part in reducing carbon emissions globally.

In our hyperbaric center at the Geneva University Hospital, Switzerland, we used to distribute plastic bottles of water to each patient to help them equalise the pressure across their tympanic membranes during the compression phase of hyperbaric oxygen treatment (HBOT).

Before our initiative, approximately 5,300 bottles were distributed annually, i.e., one bottle per session and per patient (both urgent and elective patients). Based on the life cycle assessment (LCA),[3] the bottles represented 100 kg of plastic and the equivalent of 5 tons of CO_2 each year at our center. This calculation was carried out by our institution's environmental experts and involved modeling the environmental impact of all material and energy flows throughout the product's life cycle. The extraction of raw materials or the use of recycled materials, the transformation, use and treatment of end-of-life waste are analysed, resulting in the carbon footprint. There are global databases that contain references for carbon data, allowing to estimate the carbon footprint of a given object.

Our intervention consisted of acquiring: (1) a single water cooler fountain for our hyperbaric medicine center as an initial investment of 1,200 CHF, (2) 330 ml reusable metal bottles at 4 CHF each, and (3) 10 reusable plastic cups (virtually no cost because returnable). For elective indications, a dedicated metal bottle was given to each patient (kept for their HBOT series and given to them at the end as a goodie). For urgent indications, the reusable cups were used, then washed and used again for future patients, and their carbon footprint is minimal. Five thousand HBOT sessions corresponded to approximately 200 elective patients annually, which means 200 metal bottles per year. The carbon footprint of the metal water bottles for one year represents the equivalent of 80 kg of CO_2, compared with five tons of CO_2 for plastic bottles previously (i.e., divided by a factor 62). In addition, the cost of 200 metal bottles was 800 CHF, compared with 5,300 plastic bottles at a total cost of 1,620 CHF. The cost of the fountain is compensated in less than two years. In this example, the environmental and financial benefits are indisputable.

In conclusion, we showed that a simple intervention can effectively reduce waste and carbon printing in the field of hyperbaric medicine while being cost neutral. It's time for the hyperbaric and diving medicine sector to take responsibility for its ecological footprint and respond to the climate emergency, not only by treating those who are ill, injured or dying as a result of the climate crisis and its consequences, but also by introducing primary prevention and drastically reducing its own emissions.

References

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