Letters to the Editor

Hyperbaric oxygen therapy for osteoradionecrosis

Dr Sames and colleagues are to be commended on their thought-provoking article about regional variation in hyperbaric oxygen treatment (HBOT) provision for oro-facial osteoradionecrosis (ORN) across Australia and New Zealand.[1] The four-fold difference between jurisdictions requires further elucidation. As co-directors of the only comprehensive hyperbaric facility in Tasmania, the state with the highest ORN treatment rate, we believe a number of issues pertaining to the Australian situation warrant further consideration.

1. Disease prevalence

Comparisons between regions require consideration of socio-economic conditions. Tasmania has Australia's highest proportion of people living below the poverty line.[2] The increased prevalence of multiple conditions linked to lower socio-economic status (smoking, alcohol, obesity, cardiovascular disease) is reflected in our higher than average age-standardised mortality rates for cancer, diabetes, ischaemic heart disease and stroke.[2,3] Although lack of a specific ICD-10 code for oro-facial ORN prevents estimation of hospital-based incidence or treatment rates, as the authors rightly point out, it is reasonable to assume that Tasmania's figures will reflect known trends and exceed the national average.

2. Chamber logistics

Physical and staffing constraints affect availability of hyperbaric 'places' for patients. Most States and Territories (except Australian Capital Territory (ACT)) have one major public hyperbaric chamber. The minimum physical size of a comprehensive hyperbaric facility is determined by the Medicare requirement for it to manage ventilated and invasively-monitored intensive care (ICU) patients.[4] Depending upon configuration, the Royal Hobart Hospital (RHH) multi-place chamber can accommodate either one ventilated ICU patient or five seated patients. Routine hyperbaric treatments take about two hours, and staffing levels generally limit facilities to providing two to three elective chamber runs per day safely. Although physical chamber size varies between units, New South Wales (NSW) + ACT for example (combined population eight million) cannot provide sixteen times more public hyperbaric 'places' than Tasmania (population 516,000).[5] Relative under supply of public hyperbaric services may, therefore, artificially lower ORN treatment-rates in more populous states.

3. Administrative systems

Tasmania's four acute-care public hospitals are administered by a single Health Service. Most complex specialties (including major head-and-neck surgery and hyperbaric medicine) are centralized at the state's sole tertiary-level facility (RHH). Strong political emphasis is placed on equity of access to these centralized services, wherever the patient lives in Tasmania. Patient travel assistance programmes, outreach clinics at regional hospitals, and lack of bureaucratic territoriality ensure free flow of patients throughout the region.

This contrasts with the situation encountered in more populous eastern states where multiple tertiary-level hospitals in separate area health services (sometimes several in a single city) vie for supremacy. Acute diving-related injuries may be referred across administrative boundaries, but chronic medical conditions seldom are. Points 2 and 3 are neatly illustrated in Figure 1 of Sames et al's paper.[1] A clear dichotomy is evident between the more populous multi-hospital, multi-health-service eastern states (Victoria/Queensland/NSW+ACT), which treat < 10 cases per million population; and less populous states (Western Australia (WA)/South Australia/Tasmania/Northern Territory) with fewer tertiary-level hospitals, servicing a higher proportion of their population (12–19 cases per million).

4. Regional geography

Residual variation between comparable states may be due to local geography and population distribution. Amongst the less populous states identified above, Tasmania is the smallest (land area 68,400 km^2). Driving times to RHH from anywhere in Tasmania seldom exceed four hours. A very different situation exists in, say, WA (land area 2.52 **million** km^2) where distance may preclude routine land-based travel from outlying regions.

Local data indicate that *per capita* hyperbaric activity levels (across a range of Medicare-approved diagnoses) are consistently higher in Tasmania than elsewhere. We believe this reflects the unique environment in which we work. Tasmania is a small, geographically isolated island-state administered as a single Health Service. Specialized services at the single tertiary facility are easily accessible by the entire population. Socio-economic factors affect the prevalence of several conditions approved for HBOT, and a pro-active approach to service provision is encouraged. Hyperbaric staff routinely participate in multidisciplinary head-and-neck, diabetic-high-risk-foot and wound clinics within RHH, and provide outreach clinics at regional facilities. These factors combine to optimise patient access in Tasmania. We would encourage our colleagues in the hyperbaric medicine and health administration communities to view the results of this paper as potentially indicative of unmet need in lower treatment-rate regions.

References

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