

Improved cell-purification techniques and safety monitoring needed for olfactory ensheathing cell transplantation

Woodworth and colleagues highlight an important complication 12 years after a patient received a transplantation of olfactory mucosa tissue into the spinal cord.¹ This report, combined with others cited by the authors, emphasizes that long-term follow-up after cell transplantation must be performed and reported as a matter of routine. This is essential for ensuring adequate patient safety; yet, it is at odds with the short follow-up times specified by many current trials on cell therapy.

We find it unsurprising that aberrant growth was observed after the transplantation of whole olfactory mucosa tissue. The olfactory mucosa is rich in a number of cell types,² including the pseudostratified columnar epithelial cells noted on histology from the patient in this case.¹ In the original study by Lima and colleagues, the use of whole tissue was justified because cell suspensions lead to poor cell viability and do not adequately fill the lesion space.³ These concerns are justifiable,⁴ but we challenge the idea that transplanting whole tissue is the only way to overcome such issues. Indeed, we would like to draw attention to new approaches being developed by our group and others,⁵ in which

tissue engineering and biomaterial-based approaches have the potential to enhance the delivery of olfactory ensheathing cells.

Olfactory ensheathing cells still have great potential for treating spinal cord injuries,⁶ but this case report in *CMAJ*¹ reinforces the need for improved cell-purification techniques and safety monitoring. A better understanding of the constituents of the source material and the potential beneficial or adverse effects of individual cell subgroups within the mucosa would be desirable before further clinical studies take place.

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