

Policy on Stem Cells

Originating Council

Council on Clinical Affairs

Review Council

Council on Clinical Affairs

Adopted

2008

Revised

2013

Stem cells are pluripotential cells that can divide and multiply for an extended period of time, differentiating into a diverse range of specialized cell types and tissues. Adult mesenchymal stem cells, of which dental stem cells are a subset, are highly proliferative and have the ability to differentiate into many cell lines.¹ The most familiar application of adult stem cell therapy is bone marrow transplantation to treat hematopoietic cancers, metabolic disorders, and congenital immunodeficiency syndromes. Stem cell therapy is undergoing clinical testing for other conditions such as Parkinson's disease, diabetes, and brain trauma/spinal cord injuries.^{2,3} Suggested applications related to oral health care have included wound healing and regeneration of dental and periodontal tissues as well as craniofacial structures (eg, repair of cleft lip/palate).⁴

Parents may elect to preserve umbilical cord blood of their child for future harvesting of stem cells if autologous regenerative therapies are indicated. Pulpal tissue of exfoliating primary teeth and surgically removed third molars may serve as a source of mesenchymal stem cells.⁵ While sources of dental stem cells are readily accessible, those cells must be secured and stored properly to maintain the potential to proliferate and differentiate.⁶ The public is increasingly aware of this emerging science, and more parents are expressing interest in harvesting/banking dental stem cells.

The American Academy of Pediatric Dentistry recognizes the emerging field of regenerative medicine and encourages dentists to follow future evidence-based literature in order to educate parents about the collection, storage, viability, and use of dental stem cells with respect to autologous regenerative therapies. As the technology continues to evolve, the process

of procurement of dental stem cells should be accomplished only with deliberate integrity and appropriate informed consent to assure the highest ethical standards and quality of outcomes.

References

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