Title: Exploring Amniotic Membrane in the Medical Managed Practice

CE Hours: 1

Category: Treatment of Anterior Segment

Description: This one-hour course is focused on amniotic membranes as a therapeutic treatment option for various corneal diseases. We will discuss the history, types, indications, clinical application, and proper billing and coding of amniotic membranes.

Objectives:
-Discuss clinical applications of amniotic membranes in eye care
-Describe the history and indications of amniotic membranes in the optometric office
-Discuss appropriate billing and coding of amniotic membranes

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1. What is the amnion?
    a. Innermost, avascular lining of the fetal membrane & placenta
    b. Shares the same cell origin as the fetus
    c. Contains anti-inflammatory cytokinesis and growth factors
    d. Harvested in a sterile environment from placental tissue obtained during elective cesarean sections
    e. Donors are screened for transmissible disease
    f. Benefits[1]
        i. Promotes epithelialization
        ii. Suppresses inflammation
        iii. Inhibits scarring
        iv. Inhibits angiogenesis
        v. Anti-microbial agent
2. History & Evolution
    a. 1910=1st documented use as skin graft [2]
    b. 1940=1st documented use in eye (chemical burn) [3]
    c. Modern uses in healthcare
3. Amniotic Membrane Components
    a. Key components:
        i. Heavy chain hyaluronic acid
        ii. Proteoglycans
        iii. Growth factors

        iv. Collagens
        v. Fibronectin
        vi. laminin
    b. Key Functions:
        i. Promotes epithelial growth through cell migration, adhesion, & differentiation[4,5]
        ii. Inhibits fibroblast growth (reduces scarring)
        iii. Inhibits pro-inflammatory cells
            1. decreased expression of cytokines
            2. Suppresses t-cell activation
            3. Inhibits giant cell formation
            4. Controls MMP production
            5. Blocks angiogenesis
        iv. Universally tolerated due to lack of histocompatibility antigens (HLA-A, B, or DR)
4. Options
    a. Cryopreserved
        i. Pros: no lost nutrients
        ii. Cons: patient comfort, cost
    b. Dehydrated
        i. Pros: patient comfort, variety of sizes, reduced cost/greater ROI, easy to stock/store
        ii. Requires BCL for retention
5. Ocular Indications
    a. Band Keratopathy
    b. Bullous Keratopathy
    c. Corneal & conjunctival burns and corrosions
    d. Filamentary keratitis
    e. Corneal ulcers
    f. Corneal abrasions
    g. Keratopathy defects
    h. Post-infection keratitis
    i. Mooren's ulcer
    j. Neurotrophic keratoconjunctivitis
    k. Recurrent corneal erosion
    l. Stevens-Johnson syndrome
6. Ease of Use
    a. Video demonstrating placement of both cryopreserved and dehydrated amniotic membranes on eye
    b. Clinical "Pearls" on placement of amnio membrane
    c. Common Pitfalls
        i. Eye rubbing, slipped membranes, second placement
7. Case Studies
8. Billing & Coding

    a. CPT 65778: Placement of amniotic membrane on ocular surface without sutures
    b. Bilateral 150% rule applies
    c. Do not bill CPT 92071 (fitting of contact lens for treatment of ocular surface disease) concurrently
    d. Do not bill CPT 9921x (E/M office visit) concurrently
    e. Global period is ZERO days, bill any follow-ups
    f. No frequency of limitations
9. Patient Benefits & Outcomes
10. Practice Benefits
    a. Advance patient care
    b. Reimbursement
    c. Expansion of the types of patients retained or brought into the practice
    d. Practice viewed as a progressive, medically oriented optometric care clinic

References:

1) Dua HS, Gomes JA, King AJ, Maharajan VS. The amniotic membrane in ophthalmology. Surv Ophthalmol. 2004; 49(1): 51-77.
2) Davis JW. Skin transplantation with a review of 550 cases at the JohnsHopkins Hospital. Johns Hopkins Med J Hosp Rep 1910;15:307–96.
3) De Rotth A. Plastic repair of conjunctival defects with fetal membranes. Arch Ophthalmol 1940;23:522–5.
4) Meller D, Tseng SC. *Invest Ophthalmol Vis Sci*. 1999;40(5):878-886.
5) Boudreau N et al. *Proc Natl Acad Sci USA*. 1996;93(8):3509-3513.