A systematic review: Current trends & take rates of CEA in the treatment of patients with burn injuries

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BACKGROUND / AIMS

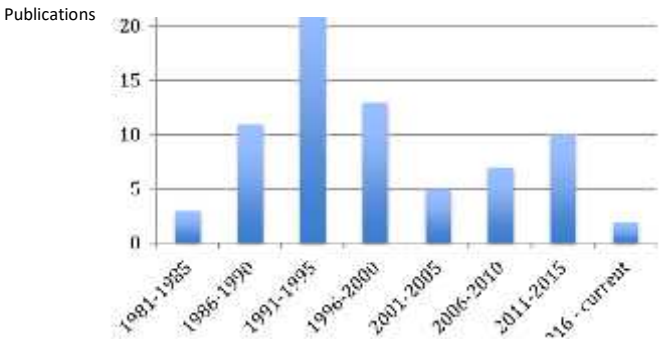
- despite four decades of research, there are still significant differences in opinion & variations in clinical application of CEA
- level of evidence regarding CEA is low
- the aims of this study were to:
  1. determine current practice & trends
  2. determine clinical efficacy of CEA

METHODS

- structured search: Ovid MEDLINE 1946 - present & EMBASE 1974 – present
- keywords “cultured epithelial autograft” OR “CEA” OR “keratinocyte culture” OR “cultured skin”
- inclusion: all publications involving human application of CEA in the setting of burn injury
- exclusion criteria
  - laboratory based experimental or animal studies
  - non-English language studies
  - non peer-reviewed studies
  - studies not available in full text
  - unpublished data
  - clinical practice guidelines and commentaries
  - studies involving culturing of fibroblasts and engineered skin substitutes (ESS)

RESULTS

- 7267 studies identified via initial search strategy
- 77 studies included in analysis
- mostly level III-IV evidence
- current practice
  - early excision burn wound within 5-7 days
  - most popular method of wound temporisation: cadaver allograft
  - CEA application: over anterior surfaces
  - avoid CEA application over joints, bony prominences, perisphincteric, weight bearing surfaces



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- trends
  - method of delivery: spray-on CEA is becoming increasingly popular (however lacking evidence)
  - strategy: simultaneous application of CEA & widely meshed autograft is becoming increasingly popular
- take rates
  - inconsistent & unpredictable 0-100%
  - poor outcomes attributed to
    - unfamiliarity with technique
    - poor wound bed preparation
  - wound colonisation difficult to prevent
  - wound infection most commonly cited cause of CEA failure
  - CEA & widely meshed autograft: higher & consistent take rates 73-96%
- length of stay (LOS) & mortality
  - CEA has been life saving
  - paucity of consistent reporting
  - mixed results
  - inverse correlation exists between LOS & mortality

CONCLUSIONS

- CEA has contributed to wound closure
- CEA has been life saving
- CEA is not a replacement for SSG
- CEA remains adjunct or biological dressing
- skin tissue engineering should continue as the need is foreseeable into the future