Current State of Cartilage Regeneration

Gold Standard – ACI

? Periosteum

? Collagen membrane

By Prof. George Bentley

New approaches to Cell grafting

- Increase yield
  - Bioreactors
  - Growth factors
- New source of cells
  - Stem cells
  - Allografts ? Xenografts
- Improve biodegradable matrix

Biodegradable Matrices

- Advantages
  - Custom-sized implants
  - Minimally invasive implantation
- Disadvantages
  - ? Interference with cell migration & matrix production
  - Uncertain biodegradability

Future Aims of Cartilage Transplantation

- Improve Results
- Reduce Morbidity
- Extend Scope ? OA ? Arthropathies

Future Directions in Cartilage Transplantation 1

- Refined diagnosis and screening
- Clarify indications
- Harvesting ? Morbidity
- Healthy cartilage – improve assessment
  - Probes - Mechanical
    - Biochemical
- Excision of Bone - Bleeding
- Grafting of Bone - Indications

Future Directions in Cartilage Transplantation 2

- Periosteum or Collagen membrane
- Suture technique and cartilage damage
- Water-Tight testing - relevant ?
  - harmful ?
- Number and Type of cells required
- Cell Adherence Time

Future Directions in Cartilage Transplantation 3

- Non – Invasive Surgery – avoid biopsy
- Timing of Rehabilitation
- Non – Invasive monitoring
- Correlation of Repair with Assessment
- Quality of Life and Cost Assessment

Future Directions in Cartilage Transplantation 4

- Clinical Trials – National and International
- Increase Laboratory – Clinical Contact
- Alternative Study Design
  - C.P.M v Immobilisation / Weight bearing
  - Matrices
  - MACI concept
  - Cell – Engineered Solutions
  - Genetic Therapy

Cartilage – Davos 2002

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- All Power to your Future Endeavours !

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