SUMMARY

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The use of foreign bone as grafting material obviously has greater convenience both for the surgeon and for the patient. Here is a brief summary of the whole work classified into paragraphs according to the chapters of the essay.

Terms associated with osteochondral transplantation have been defined for preventing either confusion or disagreement. This was resolved by defining the intended meanings.

Reconstructive bone surgery is an ancient art. Even in the time of Hippocrates surgeons were attempting to use animal tissues as transplant material, but obstacles and difficulties were enormous. More recent efforts were attacked on religious grounds and doctor's live were threatened by fanatical priests.

It should be borne in mind that a bone bank is different from a blood bank, as in blood transfusions there is no regenerative powers attendant whereas in bone transplants the host must do more than just tolerate the alien tissue.

The characteristics of allograft bony union to the host, limited remodeling, and modest periosteal new bone with soft tissue attachments suggest that allograft is conditionally accepted by the host.

The selection and proper application of bone allografts are all based on the biodynamic sequence

that occurs from the time of transplantation to incorporation and secondary remodeling.

Fresh allografts showed antigenicity which was as strong as spleen cell grafts in relation to humeral and cellular response. The antigenicity of bone is believed to decrease or disappear as a result of the destruction of cellular membrane by different methods of sterilization and preservation.

The establishment of a safe bone banks requires strict criteria for donor selection. Bone allograft donors are of two kinds; living donors and cadaver donors.

Contamination control is the most crucial aspect of procurement. The type of reconstructive surgery to be performed will determine how the bones are obtained.

Many methods have been used for sterilization and preservation of bone in an attempt to provide safe and efficacious tissue and to reduce the immunogenicity of the graft.

It is important to keep accurate records of donor medical histories and the results of tests used to confirm sterility and the abscence of transmissible disease. It is also recommended that random cultures be obtained periodically to assure maintenance of sterility.

Retrieval of specific bone is simplest when there

is a planned organization of bones in the storage units.

Permission for procurement and storage of bone should be sought from donors or their next-of-skin. Although the Uniform Anatomical Gift Act states that, prior to death, through such measures as a will or a donor card, removal of tissue is legally protected. Almost all tissue banks relyon permission from relatives postmortem before acquiring tissues or organs.

A physician should be ultimately responsible for activities of a bone bank. Administration of the financial aspects and the record keeping. However, may be the responsibility of a non-medical person.

The existing tissue banks vary in their complexity and scope of operation. Some serve a large number of surgeons and institutions over a wide geographic area, while others provide allografts only to surgeons in their own institutions.

Both cost effectiveness and safety can be realized in the operation of a community bone bank by adoption of the following measures: allogenic bone is collected from femoral heads excised from total hip arthroplasties; careful donor and graft selection controls ensure an allograft free of disease which can be transmitted to the recipient and preservasion by deep freezing , rather than freeze drying .

The use of osseous and osteochondral allografts

for the replacement of damaged or diseased bone has become commonplace. The nature and scope of these surgical applications include the treatment of cystic defects, non unions, and arthrodesis as well as major roles in limb-sparing tumor resections, total joint reconstruction and spinal surgery.

The complications of allograft transplantation arise in connection with technical errors, wound infection and incompatibility between donor and recipient. The strict adherence to the correct technique significantly reduces the complications. Infection and incompatibility can be overcomed with the suitable methods of sterilization and preservation, and proper quality control and record keeping.

The experimental findings suggested that, xenograft bone might be a good bone bank material provided it was deproteinised and either impregnated with living autologous red marrow as a composite graft or placed in a bed of bleeding cancellous bone.

Finally, although bone banking has become a well-established procedure, investigational studies are continuing to improve tissue preservation, sizing, and matching of grafts.