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# **CONCLUSION**

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The present study “was conducted in Department of Orthopaedics, MLB Medical College, Jhansi. 40 patients with hand & forearm injuries were subjected in this study. Patients were assessed thoroughly before & after application of JESS fixator. All the necessary procedures were done before & after removal of JESS fixator so that functions of the hand can be maintained normal either physiologically or cosmetically active & passive exercises were started soon, as per pain tolerance & compliance of patients along with other rehabilitation procedures before & after removal of fixator. We compare the observations of our study with other studies and on the basis of these, we concluded our study as.

### *A - DISADVANTAGES IN CONSERVATIVE TREATMENT:*

- Immobilization of adjacent joints
- Immobilization of dynamic structures
- Secondary displacement is not uncommon
- The control of small bone fragments by a cast is inefficient & difficult.

### *B - DISADVANTAGES IN ORIF (OPEN REDUCTION & INTERNAL FIXATION)*

- 1- Access to the bone can be difficult; because of the complex soft tissue structures the marginal error is small.

- 2- Plating strips the periosteum, impairing the vascular supply to the bone fragments smaller fragments close to the joint are difficult to control with a plate.
- 3- K-wire fixation although widely used to maintain fragment positions effectively. The additional use of a splint is after necessary.
- 4- K-wires may migrate into the adjacent joint or back out.
- 5- The use of internal fixation may results in surgical intervention on two occasions, as the implant may need to be removed.

### ADVANTAGE OF JESS

1. With the use of thin & smooth wires placed away from the site of injury in a stable configuration created by an exoskeleton of connecting system & link joints, it provides a stable skeletal environment aiding rapid healing of soft tissues.
2. The system is simple & modular; it assists the surgeon in obtaining tissue stabilization, spontaneous revascularization & tissue expansion by gradual & controlled distraction.
3. Limiting the frame configuration to the involved bone alone allows immediate mobilization of the adjacent joint thus restoring circulation & prevents lymph's or venous stasis leading to lesser incidence of infections.
4. Ability to add dynamic component into the frame & permit concurrent mobility of the joints of the injured hand since mobilization keeps the gliding structures moving, functional restoration is expedient.

5. Precise positioning of the hand allows tissue transfer, tissue transplants or other reconstructions with simultaneous correction of realignment & joint mobilization.
6. Joint space & alignment of articular surfaces are maintained by ligamentotaxis in intra articular fracture.
7. In case of bone loss better maintenance of length was achieved, the patients hand can be immobilized in functional position, so chances of stiffness in non functional position is much less as compared to immobilization in POP slab.
8. It allows repeated wound inspection, cleaning & dressing without change of position, during the healing stages.
9. It allows aeration under the dressing & thus prevents sweating & maceration of tissues which may cause secondary infection of the graft area.
10. Transarticular wire fixation can cause infective arthritis. K-wires in JESS are extra-articular, thus avoid this complication.
11. It is light & patient friendly, in comparison to the fixation carried out by plaster cast, or splints.

### *DISADVANTAGES*

1. Pin site drainage, pin tract infection, pin loosening, ring sequestrum at the pin site with osteomyelitis because of open injuries.
2. Neurovascular & musculotendinous injury
3. Malunion & Non union, if fixator not assembled properly