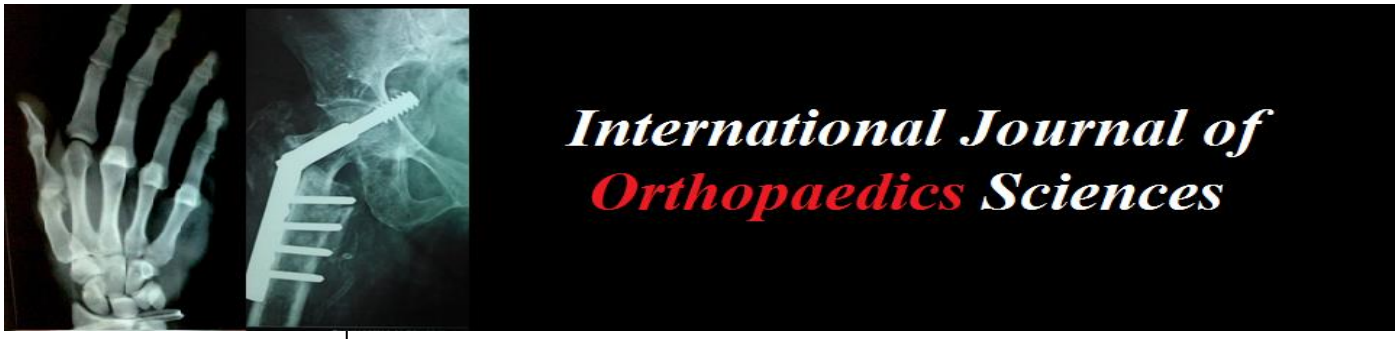

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A study of efficacy of locking versus dynamic compression plates for diaphyseal forearm fractures

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Abstract
Fractures of the forearm bones may result in severe loss of function unless adequately treated. Severe loss of function may result even though adequate healing of the fracture occurs 1, 4. Fractures of the forearm present a unique management problem for years. A forearm fracture involving both bones requires open anatomical reduction with stable fixation. 2, 3 various treatment modalities were introduced from time to time and each of them had some edge over the previous one. The forearm represents the critical anatomic unit of upper limb, permitting the effector organ of the upper limb, the hand, to perform multiaxial daily activities of living. Historically, the closed management of forearm fractures has been met with frustration in adults and resulted in poor functional outcome, hence perfect fracture reduction and rigid fixation is mandatory and achieved by plating. 3, 5, 7 The number of forearm fractures is increasing faster than the predicted rate due to increasing number of road traffic accidents, increased incidence of violence, rapid industrialization, and various sports activities. Conservative treatment has resulted in malunion, non-union, synostosis and ultimately poor functional outcome 4, 6, 7. compression techniques have a lower incidence of non-union and are found to hasten rehabilitation, with less joint stiffness.the various modalities of plating have developed each has edge over the other. there are very less studies on indian population this study has taken up to analyse the outcome between two most commonly used plates in forearm shaft fracture treatment i.e DCP (dynamic compression plate) and LCP (locking compression plate).
Aims and Objectives of The Study: 1) To study and compare the functional and radiological outcome after surgical intervention by using and open reduction and internal fixation with dynamic compression plating vs locking compression plate in the treatment of closed diaphyseal fractures of forearm.
2) To study and compare the complications associated with these two modalities of the treatment.
Materials And Methods: About 60 patients with both bone forearm fractures treated with LCP or DCP in RLJ hospital attached to Sri Devaraj Urs Medical College between maech 2013 to june 2017, will be taken up for the study after obtaining the informed consent. This is a retrospective study with follow up period of 6 months minimum.
The functional outcome was assesed according to Anderson scoring system which included evaluation of the movements and the radiological union.
Conclusions: Statistically, both LCP and DCP have similar outcomes in the treatment of diaphyseal fractures of both bones forearm. Whereas, LCP group had a faster recovery as compared to DCP group. Thus, we conclude that both LCP and DCP have similar results for the diaphyseal fractures.

Keywords: Locking versus dynamic, compression plates, diaphyseal forearm fractures

Introduction
Fractures of the forearm bones may result in severe loss of function unless adequately treated. Severe loss of function may result even though adequate healing of the fracture occurs [1, 4]. Fractures of the forearm present a unique management problem for years. A forearm fracture involving both bones requires open anatomical reduction with stable fixation [2, 3] various treatment modalities were introduced from time to time and each of them had some edge over the previous one. The forearm represents the critical anatomic unit of upper limb, permitting the effector organ of the upper limb, the hand, to perform multiaxial daily activities of living. Historically, the closed management of forearm fractures has been met with frustration in adults and resulted in poor functional outcome, hence perfect fracture reduction and rigid fixation is mandatory and achieved by plating [3, 5, 7]

The number of forearm fractures is increasing faster than the predicted rate due to increasing number of road traffic accidents, increased incidence of violence, rapid industrialization, and various sports activities. Conservative treatment has resulted in malunion, non-union, synostosis and ultimately poor functional outcome [4, 6, 7]. Compression techniques have a lower incidence of non-union and are found to hasten rehabilitation, with less joint stiffness.the various modalities of plating have developed each has edge over the other. there are very less studies on indian population this study has taken up to analyse the outcome between two most commonly used plates in forearm shaft fracture treatment i.e DCP(dynamic compression plate) and LCP (locking compression plate).

Aims and Objectives of the Study

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Materials and Methods

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The functional outcome was assesed according to Anderson scoring system which included evaluation of the movements and the radiological union.

Inclusion criteria

1. Acute Closed Diaphyseal fractures of both bone forearms with lcp or dcp insitu
2. Age 14 to 60 years

Exclusion criteria

1. Monteggia and Galeazzi fracture
2. Pathological fracture
3. Associated neurovascular injury
4. Open fracture

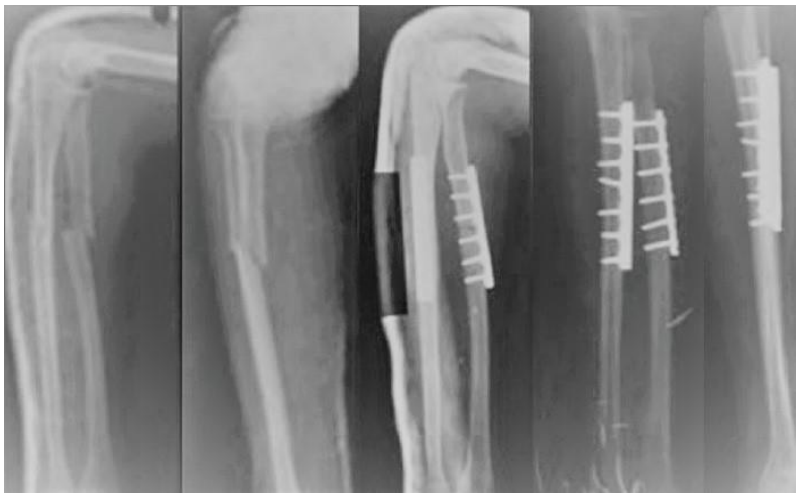
Results

Lcp Xrays and Clinical Outcome

Preoperative Post-operative

At 1 month After 3 month


Dcp Xrays and Clinical Outcome







In our study 60 cases were studied, of which 30 were operated with Locking compression plate and 30 with dynamic compression plates.

Of which 27 were male and 3 were female in dynamic compression plate group, and 28 were males and 2 were female in the locking compression plate group. 18 cases were below the age of 40 years and 12 cases were above 40 years in DCP group. 11 cases were below 40 years and 19 cases were above 40 years in LCP group.

Of the all the cases, 24 cases from the DCP group and 23 cases from LCP group, were due to RTA. And 6 cases in DCP group and 7 cases in LCP group were due to self-fall. 11 cases in DCP group had a right side fracture and 19 cases had a left side fracture. 18 cases in LCP group had a right side fracture and 12 cases had a left sided fracture.

In the DCP group, 4 cases had proximal 1/3rd fracture, 24 cases had middle 1/3rd fracture, 2 cases had distal 1/3rd fracture.

In the LCP group, 5 cases had proximal 1/3rd fracture, 14 cases had middle 1/3rd fracture and 11 cases had distal 1/3rd fracture.

The mean duration for union of the fractures in DCP group was about 16 weeks and LCP group was about 14 weeks. 2 cases in the DCP group had delayed union but the fractures united without any further interventions. No delayed unions were seen in the LCP group.

In both groups all the fractures united with a satisfactory or excellent outcome. In the DCP group, 80 percent cases had excellent outcomes and 20 percent cases had satisfactory outcomes. In the LCP group 83.3 percent of cases had excellent outcomes and 16.7 percent of cases had satisfactory outcomes.

Conclusions

Statistically, both LCP and DCP have similar outcomes in the treatment of diaphyseal fractures of both bones forearm. Whereas, LCP group had a faster recovery as compared to DCP group.

Thus we conclude that both LCP and DCP have similar results for the diaphyseal fractures.

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