INTRODUCTION

Chondroitin sulphate plays a role in accelerating bone healing. The regeneration of fractures, is a complex process include the inflammatory reaction, the development of the osteogenic tissue formation of callus, and the soft and hard callus remodelling phase. This research was explore effect of chondroitin sulphate on bone healing process in terms of an increase in osteoblasts, TGF β increase and callus compressive strength.

MATERIALS AND METHODS

Fracture was performed in a sterile manner using sharp scissors to get a simple fracture, followed by immobilization of the lower leg bone on one side with a cast. Chondroitin sulphate was administered in 7mg / 200g b.w. / day via NG tube in the treatment groups. The duration of time for group 1 is 14 days, 28 days for group 2, and group 3 was given a placebo in the form of a solution of 0.5% CMC Na via NG tube with a volume equal to that of the solution of chondroitin sulphate. On day 26, 5 cc of blood taken directly from the heart and were examined levels of TGF beta. The bone callus were examined by anatomical pathology lab, and the strength of the callus was determined using Autograf.

RESULTS

Figure 1. Diagram of stem histogram levels of TGF-β in the control and treatment groups.

Figure 2. Diagram of the stem (histogram). The number of osteoblasts in the control and treatment groups.

Figure 3. Diagram of the stem (histogram). Compressive strength values of callus in the control and treatment groups.

Table 1. The level TGF-β, osteoblast cell count and compressive strength test results of control and treatment groups

CONCLUSION

The provision of chondroitin sulphate for 2 or 4 weeks on healing fractures was shown to increase the production of TGF-β, the number of osteoblasts and the compressive strength of the fracture healing callus. This is strengthen that chondroitin sulphate has important role in bone healing.

REFERENCES