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RESEARCH ARTICLE

COMPARISON OF SHORT-TERM CLINICAL OUTCOMES (ASES SCORES) ON CLAVICULAR FRACTURES BETWEEN OPEN REDUCTION INTERNAL FIXATION (ORIF) AND NON OPERATIVE IN RSUP H. ADAM MALIK MEDAN

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ABSTRACT

Background: Management of clavicle fractures has changed in the last decade. Primary fixation as the initial treatment is the main choice in the current literature, with the aim of reducing the incidence of complications and better functional outcome. **Methods and Materials:** This research is a descriptive analytic study with a cross-sectional approach. Samples were taken from January 2019 to December 2019 with a diagnosis of clavicle fracture at the H. Adam Malik General Hospital Medan, which met the inclusion and exclusion criteria, namely 34 samples. The data analysis used was using independent T test. **Result:** The median age of patients who underwent ORIF action was 34.50 with 28 people (82.4%) being male, compared to 6 (17.6%) female. ASES results were higher in patients who received ORIF management compared to non-ORIF with a mean value of 98.52 ± 3.02 (p <0.001). **Conclusion:** There are differences in short-term clinical outcomes between patients with clavicle fractures who were treated with ORIF compared to non-operatives at RSUP HAM.

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INTRODUCTION

Clavicle fractures in adults are common, with an incidence of 2.6-4% of all fractures and approximately 35% of injuries to the shoulder blade. In the past, most clavicle fractures were treated nonsurgically because of the low rate of symptomatic nonunion and malunion. The management of clavicle fractures has changed in the last decade. Primary fixation as the initial treatment is the main choice in the current literature, with the aim of reducing the incidence of complications and better functional outcome. The advantages of using rigid internal fixation and early mobilization of new, displaced clavicle fractures include reducing pain and preventing shoulder joint stiffness and incidence of non-union. There are many scoring systems commonly used by orthopedic surgery in both daily practice and research, and several of them are used to assess shoulder function and limitations. The American shoulder and elbow surgeons standard shoulder assessment form (ASES) is easy to implement and consists of a daily patient activity assessment and a patient self-evaluation. The ASES score can assess the function of the shoulder The ASES score consists of two components, namely the pain component which has a score of 0-50 and the function component which has a score of 0-50, so that the total score of both ranges from 0-100.

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In this study, the authors took a short-term control time for the calculation of the ASES score 3-4 months after surgery or after the occurrence of clavicle fracture in the conservative group. The investigator's consideration was the duration of the formation of a hard callus from the time of the fracture to about 3-4 months.

METHODS AND MATERIALS

This research is a descriptive analytic study with a cross-sectional approach. This study was conducted retrospectively by taking secondary data from patient medical records. The study sample was all outpatients and inpatients at the Department of Orthopedics and Traumatology, RSUP HAM between January 2019 and December 2019 with a diagnosis of clavicle fracture that met the inclusion and exclusion criteria, namely 34 samples. Data analysis was using independent T test, with a p value <0.05 considered statistically significant.

RESULTS

From a total of 34 samples in this study, it was found that the median age of patients who underwent ORIF was 34.50 years with a minimum and maximum age range of 18-67 years, where 28 people (82.4%) were male, compared 6 people (17.6%) women.

Table 1. Age Characteristics and Types of Action

	Age Median (min-max)
ORIF	34.50 (18-67)
Non-ORIF	26.00 (18-78)

The type of management performed in this study was the ORIF of 18 patients (52.9%) versus 16 patients (47.1%) non-operatively. Whereas for the location of the clavicle fracture, the midshaft and lateral locations were 28 patients (82.4%) and 6 patients (17.6%), respectively.

Table 2. Percentage of Patients by Type of Management

		Frequency	Percentage
Type of Management	ORIF	18	52.9%
	Non-ORIF	16	47.1%
	Total	34	100.0%

Based on the type of treatment performed on patients with clavicle fractures, ASES results were higher in patients who received ORIF treatment with a mean value of 98.52 ± 3.02 compared to those who received non-ORIF treatment with a mean of 67.60 ± 9.09. This difference in the treatment has a statistically significant result with a p value of 0.001.

Table 3. ASES score based on type of treatment

	ASSESSMENT	P value
ORIF	98.52 ± 3.02	0.001 *
Non-ORIF	67.60 ± 9.09	

* Statistical test using independent T test, p value <0.05 indicates statistically significant results.

DISCUSSION

Clavicle fractures incidences is 5-10% of all fractures, especially in children. This case mostly occurs at the age of under 25 years, over 55 years in men, and over 75 years in women, so that two-thirds of these incidents occur in men. In the study conducted by Holsakar, it was found that the frequency of men was more than women, with a ratio of 68% for men and 32% for women. However, research conducted by Kihlström found that at the age of 65 years and over, women experienced more clavicle fractures than men. This is in line with this study where it was found that the incidence of men was more than female. From a total of 34 samples in this study, the mean age was 32.85 ± 15.02 years, of which 28 people (82, Based on the sex of patients who experienced clavicle fractures, the results of the ASES score were higher in patients with male sex with a mean value of 84.82 ± 15.82 compared to women with a mean of 79.99 ± 22.89. However, based on the analysis, the statistical test results were not significant (p> 0.05).

The treatment of clavicle fractures is conservative and operative). In this study, conservative management was performed for clavicle fractures in the form of an arm sling or a figure of eight bandage. The most commonly used operating methods today are open reduction and fixation of the internal plate; The fracture segment is fixed with nails, pins, or intramedular cables. In this study, it was found that ORIF measures were performed on 18 (52.9%) of a total of 34 patients. ASES scoring was performed to assess the evaluation of the outcome of the action. The ASES score consists of two components, namely the pain component which has a score of 0-50 and the function component which has a score of 0-50, so that the total score of both ranges from 0-100. In this study, the surgical method used for clavicle fracture is Open Reduction and Internal Fixation (ORIF). Zheng (2019) conducted a study to assess functional outcome for 6 months after ORIF and conservative measures with an ASES score, it was found that the mean ASES value regardless of ORIF or conservative action was 88.27. Zheng also stated that complete repair of movement of the shoulder joint can return to normal function about 12 weeks after surgery. In this study, it was found that there was a significant significance of the ASES results for patients who had ORIF action compared to those without ORIF, where each value was 98.52 + 3.02 with ORIF and 67.60. +9.09 with measures without ORIF, with a p value of 0.001 (p <0.05). This is in line with the research of Tiefenboeck (2017) which found statistically significant results with the final result of the ASES score in patients who underwent ORIF was 98.81 which was also supported by research from Chechik with results of 85.3 + 14.

Conclusion

There are differences in short-term clinical outcomes between patients with clavicle fractures who were treated with ORIF compared with non-operatives at RSUP HAM, assessed by the higher ASES score results in patients who received ORIF management compared to those who received non-ORIF management.

REFERENCES

Ahmed AF. *et al*. 2018. Open Reduction and Internal Fixation versus Non-Surgical Treatment in Displaced Midshaft Clavicle Fracture: A Meta-Analysis. *Journal of Orthopedic Trauma Publish Ahead of Print.* Doi: 10.1097 / BOT.0000 000000001174

Bajuri MY, Maidin S, Rauf A, *et al*. 2011. Functional outcomes of conservatively treated clavicle fractures. Clinics; 66 (4): 635-9.

Bastos MF *et al*. 2010. Trabecular bone area and bone healing in spontaneously hypertensive rats. A histometric study, Braz Oral Res; 24 (2): 170-6.

Bentley T P. (2019). Clavicle Fractures. NCBI: Statpearls access inhttps://www.ncbi.nlm.nih.gov/books/NBK507892/

Blom A, Warwick D, Whitehouse MR, editors. 2018. Apley & Solomon's System of Orthopedics and Trauma (10th edition). New York: CRC Press.

Booker S, Alfahad N, Scott M, Gooding B, Wallace WA. 2015. Use of scoring systems for assessing and reporting the outcome of results from shoulder surgery and arthroplasty. World J Orthop; 6 (2): 244-51.

Buckwalter J. 2008. Orthopedic Basic Science Biology and Biomechanics of the Musculoskeletal System (2nd edition). American Academy of Orhopaedic Surgeon: 372-95.

Canadian Orthopedic Trauma Society. 2007. Non operative treatment compared with plate fixation of displaced midshaft clavicular fractures. A multicenter, randomized clinical trial. J Bone Joint Surg Am; 89: 1-10.

Calder JDF *et al*. 2002. Management of pediatric clavicle fractures is follow-up necessary? An audit of 346 cases. Ann R Coll Surg Engl, pp. 331-33.

Canale ST, Beaty SH, editors. 2016. Campbell's Operative Orthopedics (13th edition). Tennessee: Elsevier.

Chechik O, *et al*. 2018. Surgical approach for open reduction and internal fixation of clavicle fracture: a comparison of

vertical and horizontal incisions. SpringerLink 43, pp. 1977-82.

Gao F, Li TR, Zhou JC, *et al.* 2018. Effects of obesity on the healing of bone fracture in mice. Journal of Orthopedic Surgery and Research; 13: 145.

Hill JM, McGuire MH, Crosby LA. 1997. Closed treatment of displaced middle-third fractures of the clavicle gives poor results. J Bone Joint Surg Br; 79 (4): 537-9.

Hosalkar H. 2012. Open Reduction and internal fixation of displaced clavicle fractures in adolescents. Orthop Rev, p. 4 (1).

Kihlström *et al*. 2017. Clavicle fractures: epidemiology, classification and treatment of 2422 fractures in the Swedish Fracture Register; an observational study. BMC Musculoskeletal Disorders, p. 82.

Klein SM, Badman BL, Keating CJ, *et al*. 2010. Results of surgical treatment for unstable distal clavicular fractures. J Shoulder Elb Surg; 19: 1049-55.

McKee MD, Pedersen EM, Jones C, *et al*. 2006. Deficits following non operative treatment of displaced midshaft clavicular fractures. J Bone Joint Surg Am; 88 (1): 35-40.

McKee RC, Whelan DB, Schemitsch EH, McKee MD. 2012. Operative versus nonoperative care of displaced midshaft clavicular fractures: A meta-analysis of randomized clinical trials. J Bone Joint Surg Am; 94 (8): 675-84.

Mirhadi S, Ashwood N, Karagkevrekis B. 2013. Factors influencing fracture healing. Trauma; 15 (2): 140-55.

Napora J, *et al*. 2015. Results and Outcomes after Midshaft Clavicle Fracture: Matched Pair Analysis of Operative Versus Non Operative Management, p. 310.

Napora JK, Grimberg D, Childs BR. 2016. Factors affecting functional outcomes after clavicle fracture. J Am Acad Orthop Surg; 24: 721-7.

Nowak J, Holgersson M, Larsson S. 2005. Sequelae of clavicular fractures are common: A prospective study of 222 patients. Acta Orthop; 76 (4): 496-502.

Oh JH, Kim SH, Lee JH, *et al*. 2011. Treatment of distal clavicle fracture: A systematic review of treatment modalities in 425 fractures. Arch Orthop Trauma Surg; 131 (4): 525-33.

Paladini P, Pellegrini A, Merolla G, Campi F, Porcellini G. 2012. Treatment of Clavicle Fracture. Translational Medicine, UniSa; 2 (6): 47-58.

Sjamsuhidajat, R., Jong, WD, editor. 2005. Clavicle fracture, in Surgery Textbook, 2nd Edition. Jakarta: EGC.

Tiefenboeck, TM, *et al*. 2017. Displaced Neer Type IIB distal-third clavicle fractures- long term clinical outcome after plate fixation and additional screw augmentation for coracoclavicular instability. BMC musculoskeletal disorders, p.30.

Zheng *et al*. 2019. Treatment of unstable distal-third clavicule fractures using minimally invasive closed loop double endobutton technique. Journal of Orthopedic Surgery and Research, Article Number 37.

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