

Hip Fracture Surgery in Iraqi Patients and Evaluation of Results in the Case of Dependence on different Anesthesia Techniques

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Abstract: Background: Hip fracture represents a surgical illness and over 95% of patients requiring surgery. Several hip fractures are complex since the patient group is older and has a variety of underlying medical issues. **Objective:** This paper aims to analyse hip fracture surgery in Iraqi patients and evaluation of results in the case of dependence on different techniques of anesthesia. **Patients and methods:** This paper was considered as a cross-sectional study that is interest to to analyse hip fracture surgery in Iraqi patients and evaluation of results with dependence on different techniques of anaesthesia for hip fracture patients in different hospitals in Iraq from 26th August 2021 to 17th July 2022. This paper was focused on the impact of anaesthesia on hip fracture surgery. This data was depended on general anaesthesia and regional anaesthesia, which specialized with 138 cases where datasets were collected with two groups, which the first group presented as general anaesthesia with 70 patients, which the second group presented as a regional group with 68 patients. The datasets were recognized and analysed by the SPSS program. **Discussion:** The technique of anesthesia is one such component. The latest systematic reviews suggest that clinical results do not differ considerably across types of anesthesia. Therefore the current investigation backs up these earlier findings. We further classified general anesthesia as volatile anesthetic-based balancing anesthesia and regional anesthesia; however, we did see certain distinctions between anesthesia approaches. Our study noticed also the rate of blood loss and complications are higher in general anesthesia as more as than regional anesthesia group, special in Blood clots in the veins and Muscle atrophy which causes due to rise of bones density in general ansethesia, which drop with regional anesthesia group. HMGB1 has a significant role in injury-induced inflammatory disorders, including trauma, as a mediator underlying sterile infection and inflammatory responses. However, data in senior hip fracture patients was insufficient. The importance of HMGB1 for clinical practice has become recognized in several illness states, including various types of traumata. **Conclusion:** This study found no difference in 30-day mortality, postoperative pneumonia, or delirium comparing the general versus regional anaesthetic groups. The regional anaesthetic group was related with lower in-hospital mortality, whereas general anaesthesia was correlated with higher in-hospital mortality, although the findings were restricted by huge disparities in sample size. In the future, greater prospective randomized controlled studies will be required.

Keywords: Hip fracture; General anaesthesia; regional anaesthesia; and Femoral neck fracture.

INTRODUCTION

Hip fracture represents a surgical illness and over 95% of patients requiring surgery. Several hip fractures are complex since the patient group is older and has a variety of underlying medical issues [Zhang, C. *et al.*, 2020]. The 1-month mortality rate following hip fracture has been estimated to be among 4% and 12% in Europe and the United States and can reach high as 35% after one year. Significant research efforts are underway to enhance patient outcomes. The efficacy of laboratory testing for predicting results and the best anaesthetic approach are two key aspects of the surgical therapy of senior hip fracture patients. [National Hip Fracture Database, 2020- Page, M.J. *et al.*, 2021]

Several laboratory tests, including haemoglobin, which (Hb), total lymphocyte count (TLC), albumin, as well as creatinine, along with cytokines such as tumor necrosis factor- (TNF-), interleukin-6 (IL-6), and interleukin-10 (IL-10), have been found to be predictive of mortality following hip fracture surgery [Basques, B.A. *et*

al., 2015; Mounet, B. *et al.*, 2021]. Notably, many studies in the field are interested in the superiority of various anaesthetic approaches when it comes of clinical results following hip fracture surgery. We concentrated on high mobility group box-1 (HMGB1), a damage-associated molecular sequence molecule that drives the not infectious inflammatory response, and its role in traumatic hip fracture surgery in this setting. [Brox, W.T. *et al.*, 2016; Chu, C.C. *et al.*, 2015]

HMGB1, a relatively new inflammatory cytokine, has been linked to a variety of disorders, notably cancer, inflammatory diseases, autoimmune conditions, and trauma [Patorno, E. *et al.*, 2014]. While studies have shown that regional anaesthesia is superior to general anaesthesia, new data reveal that clinical results are not substantially different between both anaesthetic procedures [Fields, A.C. *et al.*, 2015; Heidari, S.M. *et al.*, 2011]. The major goal of this study was to look for changes in HMGB1 and IL-6 levels in elderly individuals receiving hip fracture surgery under

general or spinal anaesthetic [Helwani, M.A. *et al.*, 2015; Le-Wendling, L. *et al.*, 2012]. General anaesthesia was further subdivided into desflurane-based balancing anaesthesia and total intravenous anaesthesia (TIVA), and propofol to differentiate between anaesthesia approaches [Neuman, M.D. *et al.*, 2012; Neuman, M.D. *et al.*, 2014]. This paper aims to analyse hip fracture surgery in Iraqi patients and evaluation of results in the case of dependence on different techniques of anaesthesia.

PATIENTS AND METHODS

This paper was considered as a cross-sectional study that is interest to to analyse hip fracture surgery in Iraqi patients and evaluation of results with dependence on different techniques of anaesthesia for hip fractures patients in different hospitals in Iraq from 26th August 2021 to 17th July 2022. This paper was focused on the impact of anaesthesia on hip fracture surgery. This data was depended on general anaesthesia and regional anaesthesia, which specialized with 138 cases where datasets were collected with two groups, which the first group presented as general anaesthesia with 70 patients, which the second group presented as a regional group with 68 patients. The datasets were recognized and analysed by the SPSS program.

To follow that, the demographic characteristics of baseline were organized with the distribution of hip fracture patients based on ages within ages above and sex for males and females, where all these can be presented in Table 1 and Table 2. Furthermore, this paper was progressed to examine patients into symptoms which contain such as Bruising and swelling in and around the hip area, Inability to get up from a fall or to walk, Inability to put weight on the leg on the side of the injured hip, Outward turning of the leg on the side of the injured hip, and Severe pain in the hip or groin where it defined in Table 3. This paper is also analysed cortisone medications, lack of calcium and vitamin D, lack of regular weight-bearing exercise, osteoporosis, problems with balance, smoking and alcohol, and thyroid problems, where these demographic characteristics were shown in Table 4.

This paper was also have studied features of the demographic baseline of hip fracture patients based on types were determined with Femoral

neck fracture, Intertrochanteric hip fracture, and Subtrochanteric, which these outcomes were defined in Table 5. Besides, this data was focused on analysing 19.70, 23.66, 24.53, 26.26, and 30.47, all baseline characteristics where specialized in Table 6. This paper was also examined of hip fracture patients for both groups based on comorbidities, which where it determined as Chronic obstructive pulmonary disease, coronary artery disease, Dementia, Diabetes mellitus, Hypertension, Renal dysfunction, and stroke. That these examinations were organized in Table 7.

Moreover, this paper was determined of operative characteristics for hip fracture patients' groups through surgery used, which can be Bipolar hemiarthroplasty and Internal fixation, which can be seen in Table 8. Also, the data was extended to determine of operative characteristics for hip fracture patients' groups through surgery used by Time from injury to surgery (h), Time from admission to surgery (h), and Time of anaesthesia (mine) where these results can be estimated in Figure 1. This paper was also ultimate in the determination of operative characteristics for hip fracture patients' groups through a baseline value of NT-proBNP that it can be clearly seen in Figure 2. This paper was also determined of operative characteristics for hip fracture patients' groups through fluid balance, which into Colloid, Crystalloid, and Urine output which. These results can be seen in Table 9.

To further of outcomes, this paper was evaluated of postoperative complications between the GA group and the RA group, were depended into Blood clots in the veins, Pneumonia, Muscle atrophy, post-operative infection, the improper union of the bone, and Mental deterioration following surgery in older patients where these results can be determined in Figure 3. As well as this paper was into the enhancement of knowledge of blood loss between the GA group and RA group, where it is illustrated in Figure 4. This paper is assessed postoperative morbidity and mortality, where these factors include Ventilator days, Postoperative days, Age, Cardiac complications, Delirium, 30-day mortality, and 90-day mortality, where these results can be estimated in Table 10.

RESULTS

Table 1: Distribution of characteristics baseline of hip fracture patients based on ages

V	138
Mi	0
M	52.5000
Me	1.13424
Med	52.5000
Mo	30.00 ^a
SD	13.32428
Var	177.536
S	.000
St	.206
Ra	45.00
Min	30.00
Max	75.00
Su	7245.00

Table 2: Distribution of characteristics baseline of hip fracture patients based on sex

		F (n)	P (%)	VP (%)	CP (%)
V	Female	66	47.8	47.8	47.8
	Male	72	52.2	52.2	100.0
	T	138	100.0	100.0	

Table 3: Features of demographic baseline of hip fracture patients based on symptoms

		F (n)	P (%)	VP (%)	CP (%)
V	Bruising and swelling in and around the hip area	1	.7	.7	.7
	Inability to get up from a fall or to walk	26	18.8	18.8	19.6
	Inability to put weight on the leg on the side of the injured hip	36	26.1	26.1	45.7
	Outward turning of the leg on the side of the injured hip	25	18.1	18.1	63.8
	Severe pain in the hip or groin	50	36.2	36.2	100.0
T	138	100.0	100.0		

Table 4: Features of demographic baseline of hip fracture patients based on causes

		F (n)	P (%)	VP (%)	CP (%)
V	Cortisone medications	22	15.9	15.9	15.9
	Lack of calcium and vitamin D	26	18.8	18.8	34.8
	Lack of regular weight-bearing exercise	11	8.0	8.0	42.8
	Osteoporosis	27	19.6	19.6	62.3
	Problems with balance	21	15.2	15.2	77.5
	Smoking and alcohol	16	11.6	11.6	89.1
	Thyroid problems	15	10.9	10.9	100.0
	T	138	100.0	100.0	

Table 5: Features of demographic baseline of hip fracture patients based on types

		F (n)	P (%)	VP (%)	CP (%)
Valid	Femoral neck fracture	56	40.6	40.6	40.6
	Intertrochanteric hip fracture	50	36.2	36.2	76.8
	Subtrochanteric	32	23.2	23.2	100.0
	Total	138	100.0	100.0	

Table 6: Features of demographic baseline of hip fracture patients based on BMI

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	19.70	12	8.7	8.7	8.7
	23.66	27	19.6	19.6	28.3
	24.53	39	28.3	28.3	56.5
	26.26	22	15.9	15.9	72.5
	30.47	38	27.5	27.5	100.0
	Total	138	100.0	100.0	

Table 7: Examinations of hip fracture patients for both groups based on comorbidities

		F (n)	P (%)	VP (%)	CP (%)
Valid	Chronic obstructive pulmonary disease	18	13.0	13.0	13.0
	coronary artery disease	21	15.2	15.2	28.3
	Dementia	18	13.0	13.0	41.3
	Diabetes mellitus	34	24.6	24.6	65.9
	Hypertension	24	17.4	17.4	83.3
	Renal dysfunction	1	.7	.7	84.1
	stroke	22	15.9	15.9	100.0
	Total	138	100.0	100.0	

Table 8: Determinations of operative characteristics for hip fracture patients' groups through surgery used

		F (n)	P (%)	VP (%)	CP (%)
Valid	Bipolar hemiarthroplasty	53	38.4	38.4	38.4
	Internal fixation	85	61.6	61.6	100.0
	Total	138	100.0	100.0	

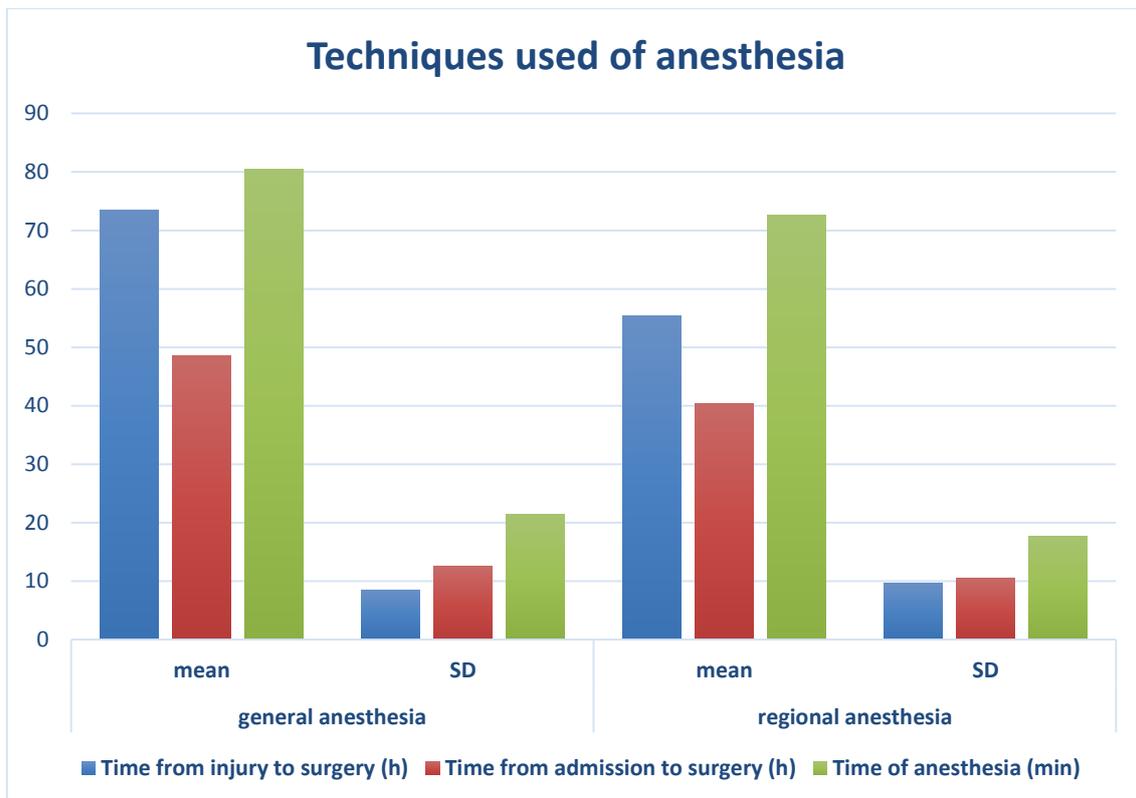


Figure 1: Determinations of operative characteristics for hip fracture patients' groups through surgery used

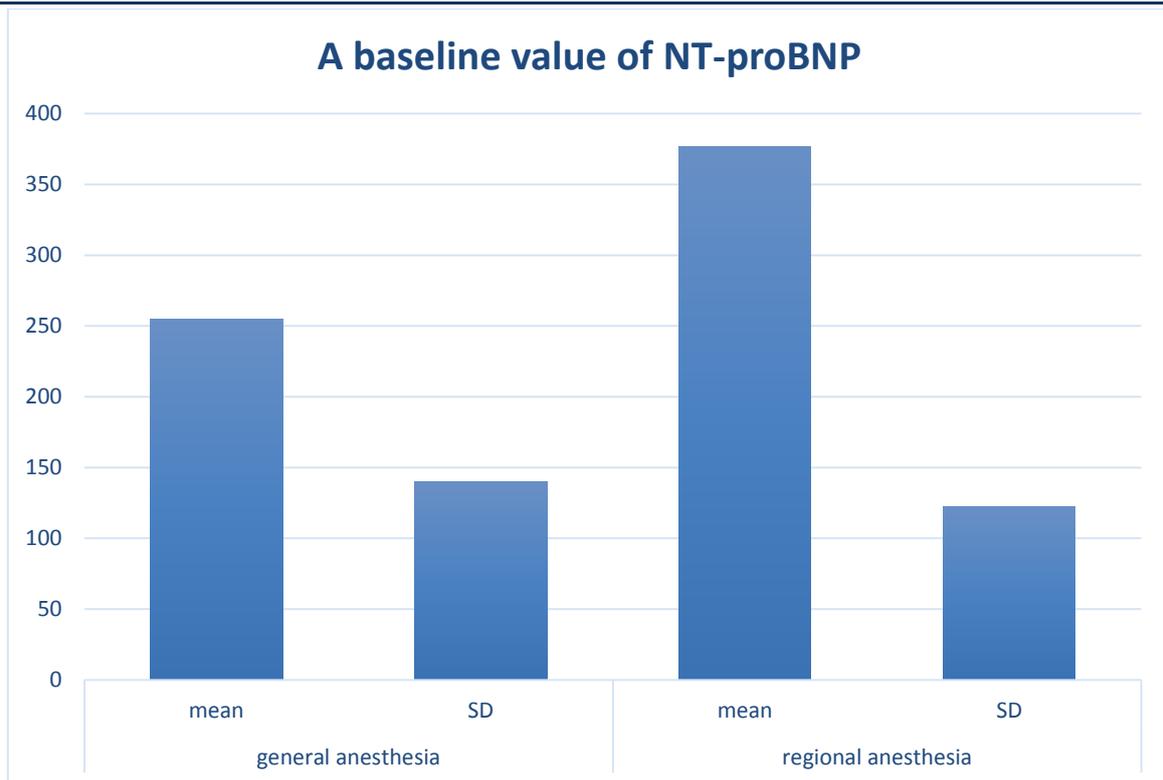


Figure 2: Determinations of operative characteristics for hip fracture patients’ groups through A baseline value of NT-proBNP

Table 9: Determinations of operative characteristics for hip fracture patients’ groups through fluid balance

		F (n)	P (%)	VP (%)	CP (%)
Valid	Colloid	27	19.6	19.6	19.6
	Crystalloid	60	43.5	43.5	63.0
	Urine output	51	37.0	37.0	100.0
	Total	138	100.0	100.0	

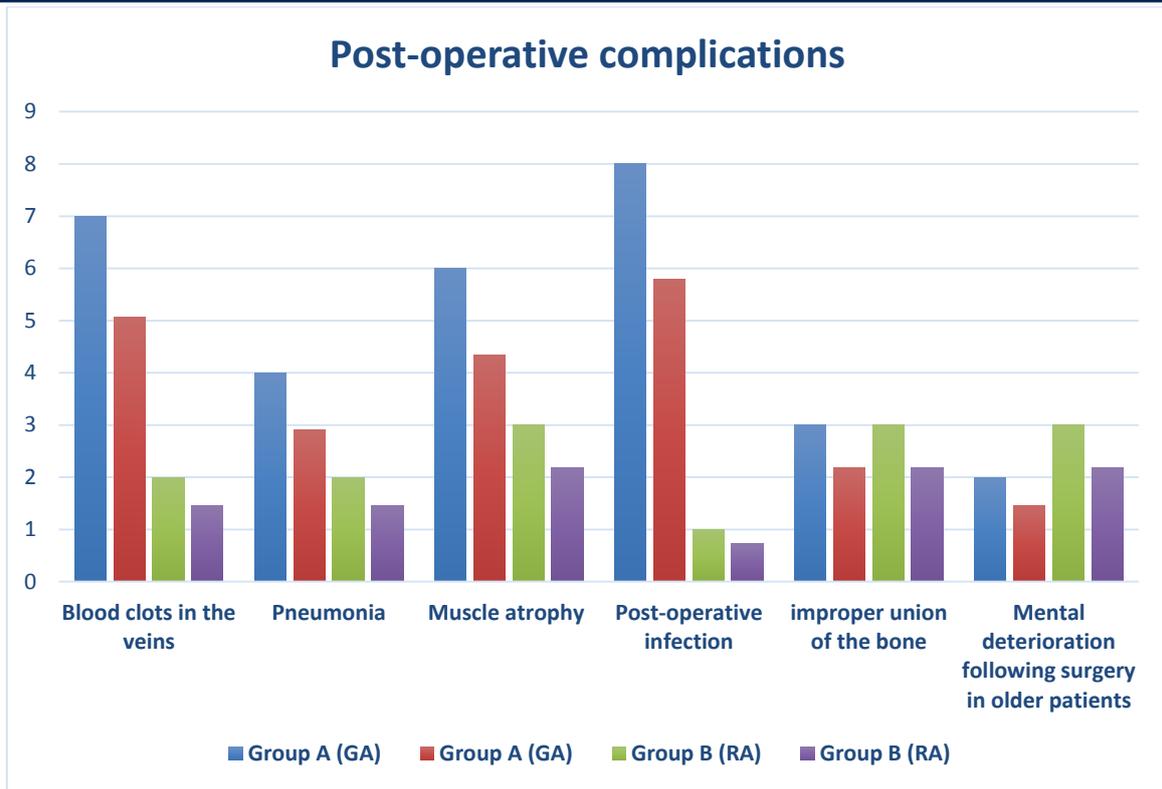


Figure 3: Evaluations of postoperative complications between the GA group and RA group

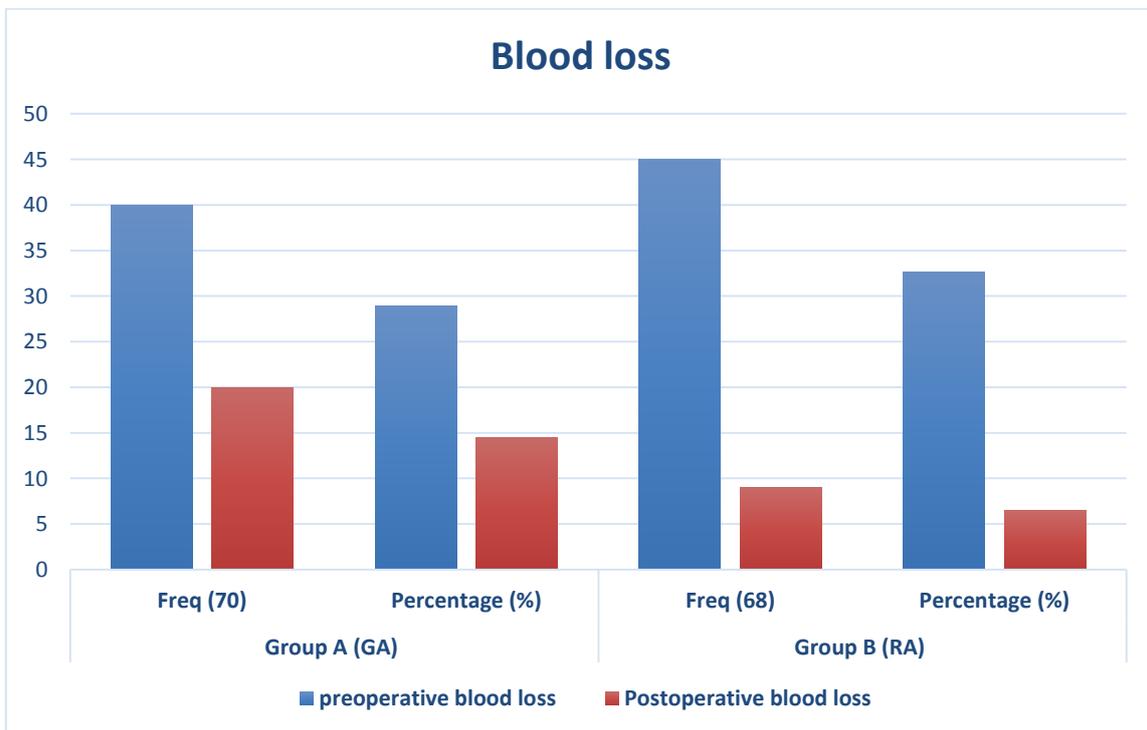


Figure 4: Evaluations of blood loss between the GA group and RA group

Table 10: Assessment of Postoperative morbidity and mortality

Parameters	GA group (70)	RA group (68)	P-value
Ventilator days	5.4 ± 2.1	6.3±2.3	0.0434
Postoperative days	3.5±1.8	5.7±2.4	0.0366
Age	3.6±2.22	3.9±2.7	0.0488
Cardiac complications	3.3±3.4	4.83±3.2	0.0355
Delirium	7 (5.07%)	4 (2.9%)	0.0264
30-day mortality	8 (5.8%)	3 (2.17%)	0.0263
90-day mortality	11 (7.97%)	4 (2.9%)	0.0266

DISCUSSION

The "quintessential geriatric illness" is hip fracture surgery, which is the most prevalent reason requiring urgent surgery in the older population [Parker, M.J. *et al.*, 2015]. It is critical to maximize each component in medical treatment in this fragile patient population. The technique of anesthesia is one such component. The latest systematic reviews suggest that clinical results do not differ considerably across types of anesthesia. Therefore the current investigation backs up these earlier findings. We further classified general anesthesia as volatile anesthetic-based balancing anesthesia and regional anesthesia; however, we did see certain distinctions between anesthesia approaches. Other regular laboratory values that were evaluated as secondary outcomes, in addition to postoperative clinical outcomes, did not differ across groups.

For many years, it was uncertain whether either general or regional anesthetic was better for hip fracture surgical results, and the dispute continues. Two large-size, multicenter randomized clinical studies (RCTs) are now ongoing, evaluating results following spinal compared.

General anesthesia following hip fracture surgery, which will give vital data and insight into this topic. To present, only a few randomized controlled trials (RCTs) have examined the effects of different anesthetic procedures in fractured hip patients [Radcliff, T.A. *et al.*, 2008]. Although this should be noted that the anesthetics utilized in several studies different significantly from those currently in use, two previous studies of over 500 patients found that there were indeed no variations in mortality or morbidity among spinal as well as general anesthesia over hip fracture surgery.

Two recent RCTs reached the same outcome, despite enrolling patients aged 50 and up. Similar findings were found in large retrospective and observational investigations involving 18,158 and 65,535 individuals, respectively. Our study is unique in that it is one of the first RCTs to assess

not just general compared. Spinal anesthesia, but additionally complications and blood loss. [Seitz, D.P. *et al.*, 2014]

HMGB1 has a significant role in injury-induced inflammatory disorders, including trauma, as a mediator underlying sterile infection and inflammatory responses. However, data in senior hip fracture patients was insufficient. The importance of HMGB1 for clinical practice has become recognized in several illness states, including various types of traumata.

Our study noticed also the rate of blood loss and complications are higher in general anesthesia as more as than regional anesthesia group, special in Blood clots in the veins and Muscle atrophy which causes due to rise of bone density in general anesthesia while a drop with the regional anesthesia group.

CONCLUSION

This study found no difference in 30-day mortality, postoperative pneumonia, or delirium comparing the general versus regional anaesthetic groups. The regional anaesthetic group was related with lower in-hospital mortality, whereas general anaesthesia was correlated with higher in-hospital mortality, although the findings were restricted by huge disparities in sample size. In the future, greater prospective randomized controlled studies will be required.

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