

## A Comparative Study to Know the Different Anesthesia Methods and Techniques Used In Iraq

Dr. Hayder Abbas Alkayssi

M.B.Ch.B. Diploma Anaesthesia C.A.B.A (ICU), Regional Anesth. & Pain Mx (Subspeciality), Ministry of Higher Education and Scientific Research, College of Medicine, University of Anbar, Anbar, Iraq

**Abstract: Introduction:** The population of some countries is growing at a much faster rate than it was in the past. According to the World Health Organization, the population over 60 years of age in the United States and other countries will double by 2021. In fact, in most Western countries, where more than half of the inpatients who undergo surgery are over 60 years of age, it is expected to accelerate, where this trend will increase significantly in the coming decades. **Objective:** This paper aims to assess a comparative study to know the different anesthesia methods and techniques used in Iraq. **Patients and Methods:** Data were collected retrospectively through reviews of electronic medical records or electronic hospital records and discharge data for all anesthesia patients in different hospitals in Iraq between 8<sup>th</sup> Jun 2021 to 5<sup>th</sup> July 2022, who were >50 years of age or older among all patients who underwent procedures. These data were designed with two groups were. The first group was represented with patients under general anesthesia, while the second group represented patients who were under spinal anesthesia. A statistical study was conducted for patients using the SPSS program. **Results and Discussions:** This study was presented general information within the demography table for patients where the patients within ages 70-80 years were the most injured, that included patients of general anesthesia 19 (47.5%) and patients of spinal anesthesia 16 (40%) with p-value 0.0441. Also, this study found that BMI between (32-34) was 15 (37.5%) for patients of general anesthesia and 18 (45%) for patients of spinal anesthesia. This study found that Postoperative blood loss (ml) got 177.47±153 for General anesthesia and 144.35±156.77 for Spinal anesthesia, as well as Respiratory 3 (7.5%) and Myocardial infarction 3 (7.5%), have the most complications of patients where a number of cases for General anesthesia have 10 cases and 14 cases. Based on the QOR score assessment, QOR, which is considered following anesthesia, is an essential indicator of a patient's early postoperative health state. In this study, the QOR score assessed that sleep got the best assessment in the group of general anesthesia, 142.22±3.4, which was excellent, while Nausea got a poor assessment for spinal anesthesia that it was 70. 68±45. **Conclusion:** Through the previous results, this study concluded that General Anesthesia is the best quality and success than spinal anesthesia due to the result that spinal anesthesia has more complications than general anesthesia, as well as the psychological assessment of patients after surgery, where it was found that the Spinal anesthesia have more cases within the weak quality in comparison with patients under general anesthesia.

**Keywords:** General anesthesia; Spinal anesthesia; Complications; ASA; and QOR score.

### INTRODUCTION

The population of some countries is growing at a much faster rate than it was in the past. According to the World Health Organization, the population over 60 years of age in the United States and other countries will double by 2021 [Ha, Y.C. *et al.*, 2015]. In fact, in most Western countries, where more than half of the inpatients who undergo surgery are over 60 years of age, it is expected to accelerate, where this trend will increase significantly in the coming decades [Ha, Y.C. *et al.*, 2016]. However, surgical services are becoming more prevalent as the country's population ages, as anesthesia for older patients requires more specialized knowledge and capabilities [Chu, C.C. *et al.*, 2015]. Strategies to improve anesthesia care, reduce complications, and improve outcomes in older surgical patients will benefit both patients and society [Inouye, S.K. *et al.*, 2014]. Sedation is defined as a "lack of sensation" where a local injection of medication may be used to numb a small part of the body, such as a finger or the area around a tooth [Seitz, D.P. *et al.*, 2014; Menendez, M.E. *et al.*, 2014]. It may also involve the use of a drug that causes a coma (general anesthesia) [Basques, B.A. *et al.*,

2015]. Local anesthesia, regional anesthesia, spinal anesthesia, epidural anesthesia, general anesthesia, and other forms of anesthesia are available [Neuman, M.D. *et al.*, 2014]. Patients always expect low anesthesia risks, minimal discomfort, and fast recovery and discharge [White, S.M. *et al.*, 2014]. In this case, optimal anesthesia treatment is required for older patients [Brox, W.T. *et al.*, 2016]. The surgical approach, the competency of the anesthesiologist and surgeon, the patient's medical condition (age, comorbidities, etc.), and other variables such as anxiety and fear of not getting up all influence the use of spinal anesthesia or general anesthesia [Tung, Y.C. *et al.*, 2016; Mason, S.E. *et al.*, 2010]. Most of them were out of action.

Moreover, anesthesiologists are constantly looking for innovative ways to provide excellent and safe anesthesia treatment, and pain control allows patients to go home promptly according to the post-anesthesia care unit policy, which can be easily replicated [Guay, J. *et al.*, 2011]. With the outpatient surgical method, spinal anesthesia was taken into account [Patel, V. *et al.*, 2018]. As we all know, anesthesia methods are divided into two

categories: general anesthesia and local anesthesia [Biboulet, P. *et al.*, 2012]. However, it is not known if he was among the best elderly patients in the Day Surgery Center [Parker, M.J. *et al.*, 2015]. Only careful selection of patients and procedures, effective administration of anesthesia during and after surgery, and early release of patients without compromising the quality of patient care can ensure the safe and timely delivery of ambulatory surgical care. Our single-center retrospective study sought to clarify and remove uncertainty about which method of anesthesia should be used in a daycare setting [Neuman, M.D. *et al.*, 2016]. In a day surgery center, the results of procedures performed on an elderly population under general anesthesia and general anesthesia using a laryngeal mask, airway, and tracheal intubation were compared with regional anesthesia, that is, spinal anesthesia [Kowark, A. *et al.*, 2018]. Anesthesia can range from an injection of a local anesthetic to numbing a very small place (such as a finger or tooth) to general anesthesia with a brief complete loss of consciousness [Yang, Y. *et al.*, 2017]. Aside from local anesthesia, other forms of anesthesia are often given by specialized doctors known as anesthesiologists and assisted by a dedicated team of nurses and technicians [Ely, E.W. *et al.*, 2004]. This paper aims to assess a comparative study to know the different anesthesia methods and techniques used in Iraq.

## PATIENTS AND METHODS

Data were collected retrospectively through reviews of electronic medical records or electronic hospital records, and discharge data for all anesthesia patients different hospitals in Iraq between 8<sup>th</sup> Jun 2021 to 5<sup>th</sup> July 2022, who were >50 years of age or older among all patients who underwent procedures. These data were designed with two groups were. The first group was represented with patients under general anesthesia,

while the second group represented patients who were under spinal anesthesia. A statistical study was conducted for patients using the SPSS program. This study was presented with these data of two anesthesia, which are general and spinal, where represent general information on the patients who were got this anesthesia and these items were aged from 50 to 59, from 60 to 69, and from 70 to 80, with BNI between 25-28, 29-31, and 32-34, sex for both males and females, and ASA which combines between three sections that I, II, III and all these details can see in **Table 1**. These data were discussed the pain scores and the duration of hospitalization in both groups, where intraoperative blood loss (ml), postoperative blood loss (ml), severity of pain on the 3rd day, pain severity on the 5th day, and a number of hospital admission day after the operation which can be clear in **Table 2**. Furthermore, data was evaluated based on the two kinds of characterization, which are anesthesia duration and PONV, where these were tested within both types of groups, and all this be clarified in **Figure 1** and **Figure 2**. Complications that arise before patients are discharged from the PACU, such as myocardial ischemia, myocardial infarction, atelectasis, respiratory, and pneumonia, were documented and can be seen in **Table 3**. Besides to that, this study had done the evaluation of the quality of recovery score for patients where the score-15 evaluation was divided into four characteristics for excellent, moderate, and poor recovery were 136-150, 122-135, 90-121, and 0-89, respectively where this evaluation included sleep, nausea, feeling worried, vomiting, and depressed and can see in **Table 4**. This data was estimated of outcomes of patients between general anesthesia and spinal anesthesia and can be shown in **Table 5**.

## RESULTS

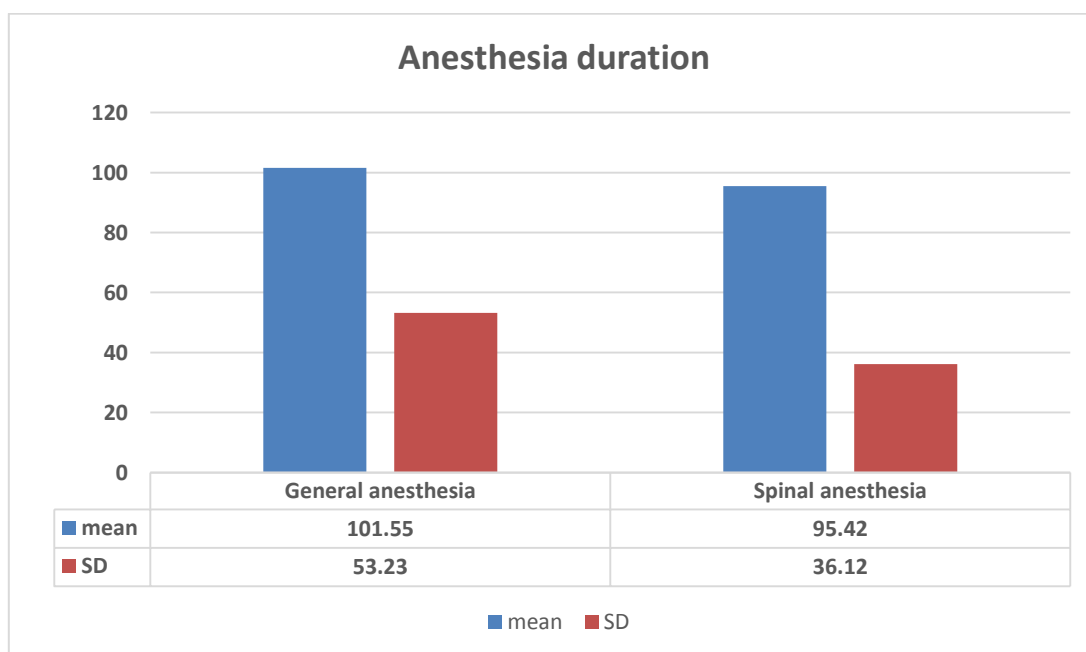
**Table 1:** The demographic results of patients between general anaesthesia and spinal anaesthesia

Items	General anesthesia (N=40)	Spinal anesthesia (40)	P-value
<b>Age</b>			
50-59	9 (22.5%)	8 (20%)	0.0482
60-69	12 (30%)	16 (40%)	0.0431
70-80	19 (47.5%)	16 (40%)	0.0441
<b>BMI</b>			
25-28	14 (35%)	8 (20%)	0.0346
29-31	11 (27.5%)	14 (35%)	0.0254
32-34	15 (37.5%)	18 (45%)	0.0265
<b>SEX</b>			

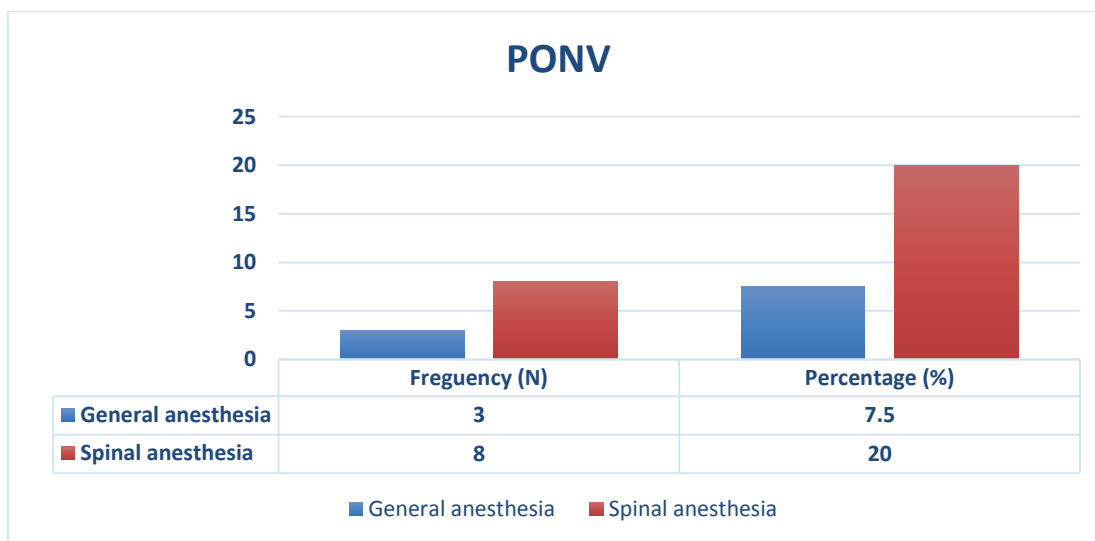
Male	21 (52.5%)	22 (55%)	0.0478
Female	19 (47.5%)	18 (45%)	0.0479
<b>ASA</b>			
I	15 (37.5%)	14 (35%)	0.0482
II	7 (17.5%)	5 (12.5%)	0.0433
III	18 (45%)	21 (52.5%)	0.0372

**Table 2:** Distribution of pain scores and the duration of hospitalization in both groups

Items	General anesthesia (N=40)	Spinal anesthesia (N=40)	P-value
Intraoperative blood loss (ml)	611.4±377.8	554.82±167.34	0.0458
Postoperative blood loss (ml)	177.47±153	144.35±156.77	0.0476
Severity of pain on the 3 <sup>rd</sup> day	4.8±2.2	3.4±2.5	0.0477
Pain severity on the 5 <sup>th</sup> day	2.6±2.8	2.4±2.8	0.0486
Number of hospital admission day after the operation	4.1±1.63	3.75±1.56	0.0465



**Figure 1:** Evaluation of anaesthesia duration for both groups



**Figure 2:** Evaluation of PONV for both groups

**Table 3:** Evaluation of patients between general anaesthesia and spinal anaesthesia

Complications	General anaesthesia (N=40)	Spinal anaesthesia (N=40)	P-value
Myocardial ischemia	2 (5%)	2 (5%)	0.05
Myocardial infarction	3 (7.5%)	3 (7.5%)	0.05
Atelectasis	1 (2.5%)	4 (10%)	0.0421
Respiratory	3 (7.5%)	3 (7.5%)	0.05
Pneumonia	1 (2.5%)	2 (5%)	0.0495

**Table 4:** Evaluation of patients between general anaesthesia and spinal anaesthesia by QOR-15 score

Items	General anaesthesia	Evaluation	Spinal anaesthesia	Evaluation
Sleep	142.22±3.4	Excellent	123.45±5.8	Good
Nausea	124.35±8.4	Good	70.68±45	Poor
Feeling worried	100.51±6.6	Moderate	86.77±2.2	Poor
Vomiting	139.27±5.8	Excellent	114.63±7.1	Moderate
Depressed	55±8.3	Poor	139±66	Excellent

**Table 5:** Estimation of outcomes of patients between general anaesthesia and spinal anaesthesia

Variable	Outcome's relevance of children	GA	SA
<b>R correlation</b>	<b>I/O</b>	+0.75	-0.23
<b>Sig</b>	--	<b>0.061</b>	<b>0.62</b>
<b>N</b>		<b>80</b>	

## DISCUSSION

Previous studies have demonstrated that some factors, including patient selection, anesthetic technique, and surgical technique, can affect the usage of spinal anesthesia and general anesthetic [Lin, S.M. *et al.*, 2004]. In reality, the parameters revealed in this observational study were a predominantly patient choice, patient fear of the other technique, patient anxiety/stress level, ease of recovery/awakening, and anesthetic technique efficacy [van den Boogaard, M. *et al.*, 2012]. As a result, this study recommends using spinal anesthesia with short-acting spinal anesthesia rather than general anesthetic in ambulatory procedures, and spinal anesthesia does not considerably lengthen hospital stays. This study was presented general information within the demography table for patients where the patients within ages 70-80 years were the most injured, that included patients of general anesthesia 19 (47.5%) and patients of spinal anesthesia 16 (40%) with a p-value of 0.0441. Also, this study found that BMI between (32-34) was 15 (37.5%) for patients of general anesthesia and 18 (45%) for patients of spinal anesthesia. As well as this study considered that males were more have injured than females; therefore, males (21 (52.5%) for patients of general anesthesia and 22 (55%) for patients of spinal anesthesia) while females got (19 (47.5%) for patients of general anesthesia and 18 (45%) for patients of spinal anesthesia). One of the main criteria for choosing the type of anesthesia is the ease of recovery after surgery, including control of

postoperative pain, nausea and vomiting, and feelings of anxiety. These side effects may delay hospital discharge or lead to unplanned readmissions. General anesthesia is a simple and reliable technique with a success rate of more than 90-95% [Veiga, D. *et al.*, 2012], which is preferred by general anesthesia in general because of its effect faster and better than spinal anesthesia. General anesthesia is also associated with better control of postoperative nausea and vomiting and a higher possibility of early discharge. The effectiveness of spinal anesthesia is comparable to general anesthesia and has been shown to be associated with higher complications compared to general anesthesia in the short term [Smith, T.O. *et al.*, 2017]. This study found that Postoperative blood loss (ml) got 177.47±153 for General anesthesia and 144.35±156.77 for Spinal anesthesia, as well as Respiratory 3 (7.5%) and Myocardial infarction 3 (7.5%), have the most complications of patients where a number of cases for General anesthesia have 10 cases and 14 cases. Based on the QOR score assessment, QOR, which is considered following anesthesia, is an essential indicator of a patient's early postoperative health state. The goal was to create a short-form postoperative QOR score and validate reliability, responsiveness, clinical acceptability, and practicality [Inouye, S.K. *et al.*, 2005]. In this study, the QOR score assessed that sleep got the best assessment in the group of general anesthesia, 142.22±3.4, which was excellent, while Nausea got a poor evaluation for spinal anesthesia that it



was 70.68±45. This study showed all results between spinal anesthesia and general anesthesia and considered that general anesthesia have more characteristics than spinal anesthesia during operative and postoperative.

## CONCLUSION

Most of the studies included a comparison between general anesthesia and spinal anesthesia; studies had made more complicated about any method that is supposed to be practiced during clinical surgery. Through the previous results, this study concluded that General Anesthesia is the best quality and success than spinal anesthesia due to the result that spinal anesthesia has more complications than general anesthesia, as well as the psychological assessment of patients after surgery, where it was found that the Spinal anesthesia have more cases within the weak quality in comparison with patients under general anesthesia.

## REFERENCES

1. Ha, Y.C., Park, Y.G., Nam, K.W. and Kim, S.R. "Trend in hip fracture incidence and mortality in Korea: a prospective cohort study from 2002 to 2011." *J Korean Med Sci* 30 (2015): 483–8.
2. Ha, Y.C., Kim, T.Y. and Lee, A, *et al.* "Current trends and future projections of hip fracture in South Korea using nationwide claims data." *Osteoporos Int* 27 (2016): 2603–9.
3. Chu, C.C., Weng, S.F., Chen, K.T., Chien, C.C., Shieh, J.P., Chen, J.Y. and Wang, J.J. "Propensity Score–matched comparison of postoperative adverse outcomes between geriatric patients given a general or a neuraxial anesthetic for hip surgery." *Anesthesiology* 123.1 (2015): 136–47.
4. Inouye, S.K., Westendorp, R.G.J. and Saczynski J.S. "Delirium in elderly people." *The Lancet* 383 (2014): 911–22.
5. Seitz, D.P., Gill, S.S. and Bell, C.M, *et al.* "Postoperative medical complications associated with anesthesia in older adults with dementia." *J Am Geriatr Soc* 62 (2014): 2102–9.
6. Menendez, M.E., Neuhaus, V. and van Dijk, C.N, *et al.* "The Elixhauser comorbidity method outperforms the Charlson index in predicting inpatient death after orthopaedic surgery." *Clin Orthop Relat Res* 472 (2014): 2878–86.
7. Basques, B.A., Bohl, D.D. and Golinvaux, N.S, *et al.* "General versus spinal anaesthesia for patients aged 70 years and older with a fracture of the hip." *Bone Joint J* 97-B (2015): 689–95.
8. Neuman, M.D., Rosenbaum, P.R. and Ludwig, J.M, *et al.* "Anesthesia technique, mortality, and length of stay after hip fracture surgery." *JAMA* 311 (2014): 2508–17.
9. White, S.M., Moppett, I.K. and Griffiths, R. "Outcome by mode of anaesthesia for hip fracture surgery. An observational audit of 65 535 patients in a national dataset." *Anaesthesia* 69 (2014): 224–30.
10. Brox, W.T., Chan, P.H. and Cafri, G, *et al.* "+++++6Similar mortality with general or regional anesthesia in elderly hip fracture patients." *Acta Orthop* 87 (2016): 152–7.
11. Tung, Y.C., Hsu, Y.H. and Chang, G.M. "The effect of anesthetic type on outcomes of hip fracture surgery: a nationwide population-based study." *Medicine* 95 (2016): e3296.
12. Mason, S.E., Noel-Storr, A. and Ritchie, C.W. "The impact of general and regional anesthesia on the incidence of postoperative cognitive dysfunction and postoperative delirium: a systematic review with meta-analysis." *J Alzheimers Dis* 22 (2010): S67–79.
13. Guay, J. "General anaesthesia does not contribute to long-term post-operative cognitive dysfunction in adults: a meta-analysis." *Indian J Anaesth* 55 (2011): 358–63.
14. Patel, V., Champaneria, R. and Dretzke, J, *et al.* "Effect of regional versus general anaesthesia on postoperative delirium in elderly patients undergoing surgery for hip fracture: a systematic review." *BMJ Open* 8 (2018): e020757.
15. Biboulet, P., Jourdan, A. and Van Haevre, V, *et al.* "Hemodynamic profile of target-controlled spinal anesthesia compared with 2 target-controlled general anesthesia techniques in elderly patients with cardiac comorbidities." *Reg Anesth Pain Med* 37 (2012): 433–40. 10.
16. Parker, M.J. and Griffiths, R. General versus regional anaesthesia for hip fractures. A pilot randomised controlled trial of 322 patients." *Injury* 46 (2015): 1562–6.
17. Li, T., Yeung, J. and Li, J, *et al.* "Comparison of regional with general anaesthesia on postoperative delirium (RAGA-delirium) in the older patients undergoing hip fracture surgery: study protocol for a multicentre randomised controlled trial." *BMJ Open* 7 (2017): e016937.
18. Neuman, M.D., Ellenberg, S.S. and Sieber, F.E, *et al.* "Regional versus general anesthesia

- for promoting independence after hip fracture (REGAIN): protocol for a pragmatic, international multicentre trial." *BMJ Open* 6 (2016): e013473.
19. Kowark, A., Adam, C. and Ahrens, J, *et al.* "Improve hip fracture outcome in the elderly patient (iHOPE): a study protocol for a pragmatic, multicentre randomised controlled trial to test the efficacy of spinal versus general anaesthesia." *BMJ Open* 8 (2018): e023609.
  20. Yang, Y., Zhao, X. and Dong, T, *et al.* "Risk factors for postoperative delirium following hip fracture repair in elderly patients: a systematic review and meta-analysis." *Aging Clin Exp Res* 29 (2017): 115–26.
  21. Ely, E.W, *et al.* "Delirium as a predictor of mortality in mechanically ventilated patients in the intensive care unit." *JAMA* 291 (2004): 1753–62.
  22. Lin, S.M., Liu, C.Y. and Wang, C.H, *et al.* "The impact of delirium on the survival of mechanically ventilated patients\*." *Crit Care Med* 32 (2004): 2254–9.
  23. van den Boogaard, M., Schoonhoven, L. and van der Hoeven, J.G, *et al.* "Incidence and short-term consequences of delirium in critically ill patients: a prospective observational cohort study." *Int J Nurs Stud* 49 (2012): 775–83.
  24. Veiga, D., Luis, C. and Parente, D, *et al.* "Postoperative delirium in intensive care patients: risk factors and outcome." *Rev Bras Anesthesiol* 62 (2012): 469–83.
  25. Smith, T.O., Cooper, A. and Peryer, G, *et al.* "Factors predicting incidence of postoperative delirium in older people following hip fracture surgery: a systematic review and meta-analysis." *Int J Geriatr Psychiatry* 32 (2017): 386–96.
  26. Inouye, S.K., Leo-Summers, L. and Zhang, Y, *et al.* "A chart-based method for identification of delirium: validation compared with interviewer ratings using the confusion assessment method." *J Am Geriatr Soc* 53 (2005): 312–8.

**Source of support:** Nil; **Conflict of interest:** Nil.

**Cite this article as:**

Alkayssi, H.A. "A Comparative Study to Know the Different Anesthesia Methods and Techniques Used In Iraq." *Sarcouncil Journal of Internal Medicine and Public Health* 2.1 (2023): pp 1-6.