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DOES THE TYPE OF ANESTHESIA HAS AN IMPACT ON MORBIDITY IN PATIENTS UNDERGOING UROGYNECOLOGICAL RECONSTRUCTIVE SURGERY?

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ABSTRACT
Pelvic organs prolapse (POP) reconstructive surgery represent a considerable portion of gynecological surgery. The victims are usually elderly females with comorbid diseases that is challenging for both the surgeon and anesthetist as well. Another point of concern is the effect of anesthetic type during the perioperative period and the first few weeks postoperatively, and weather the incidence of anesthesia related complications is affected by the type of anesthesia and the pre-surgical condition of the patients. This study was conducted to compare between spinal anesthesia and general anesthesia in elderly high risk patients with (POP) surgery. And do they have the same impact on the patients postoperatively and which type of anesthesia is preferred by the patient and the surgeon as well as the potency of controlling postoperative pain that play a major role in early mobilization and early discharge from the hospital thereby reducing the risk of infection and other anticipated complications.

KEYWORDS: Spinal anesthesia, high risk patients, general anesthesia, postoperative complications.

INTRODUCTION
The prevalence of pelvic floor disorders increase with age. It is estimated that there is 11% lifetime risk of having surgery for pelvic organ prolapse (POP) or urinary incontinence by age of 80.[1] It is also estimated that the number of POP surgeries required will rise- between 2010 to 2050- by 47.2%.[2]

The reported risk of complications confront by women undergoing gynecological surgery range from 0.2% to 26%.[3] Toglia and Nolan found that there is 10% risk of serious and adverse cardiac events and a mortality rate of 3.7% in women aged 58 to 70 who underwent major gynecologic surgery.[4] Older women undergoing gynecologic oncological procedures appear to be at highest risk. Women aged 70 years and over and of ASA III or IV who undergo gynecologic surgery have highest postoperative morbidity, in contrast to women with ASA I or II, and a mortality rate of 2.8% in the higher classified ASA groups.

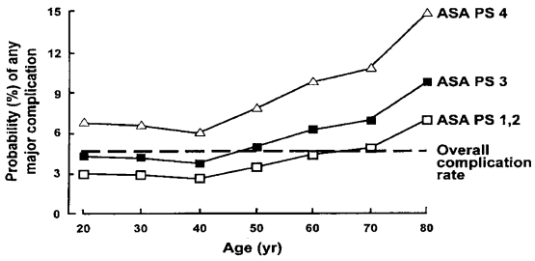

Figure *1: ASA* classification system and the associated perioperative complications rates(reprinted from anesthesia. 5th ed. Philadelphia Churchill Livingstone; 2000:2140-2156.)

POP although disabling regarding life style it is considered an intermediate risk procedure, and are associated with less or even imperceptible levels of morbidity and rarely can lead to death.[5] Figure (1).

Serious complicatins are shown in table (1):

Table (1): Serious complication may encountered during POP and major gynecological surgery.

Complication of gynecological surgery
Significant blood loss
Pulmonary edema
Congestive heart failure
History of CAD
History of peripheral vascular disease
Sequel of prlonged surgical time

Regarding the incidence of perioperative complications and its relation to the type of anesthesia to be considered in elderly patients with comorbid illnesses, it is a main challenge to the anesthesiologist either to go for regional anesthesia (spinal anesthesia or epidural) or use general anesthesia alone or may go for combined general anesthesia with epidural catheter kept in site for postoperative analgesia.

The rising arguments about the safety, the efficacy and the benifit of neuraxial anesthesia (spinal and epidural) compared to general anesthesia and do they have a different impact on the perioperative morbidity and mortality is still a point of research[6] many studies assessing the effects of neuraxial anesthesia and analgesia on surgical outcome have been published. Theses studies support certain benefits including decreased blood loss, reduced events of thromboembolism, and better analgesic efficacy but they do not approve with certain a superiority over general anesthesia regarding the effect on serious life-threatening morbidity and mortality.[7] In 2002 a meta analysis was conducted by Rodgers et al[7] in attempt to confirm wether neuraxial anesthesia has a minor impact on mortality and morbidity rather than general anesthesia, the result was that mortality, the primary outcome measure in that study was reduced by nearly one third (95%) suggesting a key role for regional anesthesia in lowering considerable and serious surgically related complications. In 2002 another study conducted by Rig et al[8] revealed no benefit in terms of mortality and minimal benefit in term of major mortality from neuraxial anesthesia in high risk surgical patients. this study counteract Rodgers et al meta analysis. assuming that there is no significant difference exist between these two routes of anesthesia.

In this study, the major concern is to spot a light on the anesthetic management of elderly gynecological patients with high risk and comorbidities, and the anticipated outcome and perioperative complications.

MATERIALS AND METHODS

After approval by the ethics committee of the directory of royal medical survices, and signed a consent form by each patient, a prospective, controlled study was then undertaken. 50 patients of ASA II - IV aging between 60-80 years, scheduled for pelvic floor reconstructive surgery were included. All patients assigned for surgery were informed and recruited at the gynecology ward for route of anesthesia based on there medical history and physical examination findings as well as patient, surgeon and anesthetist preference. contraindications for either (SA or G.A) were the corner stone in choosing the type of anesthesia for each patient.

No premedication was received by any patient, as they were assigned randomly to receive either spinal anesthesia or general anesthesia. in spinal anesthesia group (SA)(n=23), a 20 gauge i.v line was placed, a 200 ml of hestastarch (voluven) infused, the patients were placed in sitting position with slightly flexed neck, under full a septic sterile technique, 23 gauge spinal needles were used and inserted at the levels of L2-3, L3-4, 2.5 ml of hyperbaric bupivacaine (12.5 mg) were given after confirmation of correct placement of spinal needle by having backflow of cerebrospinal fluid (CSF), then the patients were placed in supine position with slightly head down for 5 minutes, noninvasive blood pressure, pulse oximeter, E.K.G monitoring and data were recorded every 5 minutes, use of vasopressors if MAP decreased by 15-20% from the baseline readings (5 mg ephedrine I.V every 10 minutes if indicated), sedation if needed, and analgesics administered all were recorded.

In general anesthesia (G.A) group(n=27), all patients received 2mcg fentanyl, 1 mg midazolam, 20 mg ketamine as a pre-induction protocol applied in our hospital, then propofol 2-3 mg/kg i.v, rocuronium 0.4 mg /kg i.v, after intubation and securing the airway maintainance of anesthesia with O2/N2O gas mixture 50%/50%, and sevoflurane inhalational agent 2% (1 MAC). Boluses of rocuronium 10 mg i.v were given if needed, intraoperative analgesia using deoxmedomitidine (precedex) (0.3-0.5 mcq/kg/hour), paracetamol 1 gm i.v, sodium declofenac 1mg/kg I.M (if not contaidicated). fluid replacement and maintainance using ringer solution. noninvasive blood pressure, pulseoximeter, E.K.G, ETco2, MAC value and BIS monitoring .both groups received prophylactic innohep 4500 I.U s.c once daily for 10 days due to considerable risk of developing thromboembolism, specially in pelvic floor surgery and the coexisting medical disease. Antibiotics 1gm rociphine (3rd generation cephalosporin) was given 30 minutes prior to surgery to reduce the risk of postoperative infection, hypothermia was prevented by using warm blankets.

Upon arrivial to PACU(post anesthesia care unit), both groups were monitored closely for the vital signs, pain assessment using verbal analogue scale, 0.1 mg/kg of morphine sulfate was given whenever the pain score was more than 5 over 10. The criteria for discharge from (PACU) were fully awake, good pain control, respiratory function, good oxygen tension (saturation), no bleeding, good urine output, in the gynecological ward close observation for vital signs every 3 hours for two days, bleeding, pain control, and any arising significant complaint that might need an intervention. criteria for discharge from hospital were ampulation, no infection, return of bowel motility and good pain control.

Patients were followed up weekly for 4 weeks, with certain concern of anesthesia related complications such as cognitive functions, cardiac complications, postoperative delirium or the time of hospitalization, as well as mortality rate based on the type of anesthesia employed. Table 2.

Table (2): The most common postoperative complications encountered in elderly gynecological surgery.

Postopereative complication
Pneumonia
Cardiac events
Delirium
U.T.Is
Thromboembolic events

RESULTS

23 patients assigned for S.A, 3 of them were converted to G.A, 2 of them their surgery was converted to laparotomy the required higher level for surgical incision and the latter one the S.A could not be achieved within a reasonable time period.

6 women 2 in G.A group and 4 in S.A group required vasopressor (ephedrine) to treat hypotension the average bolus dose used 9 +/- 3 mg. 3 patients in S.A group required additional analgesia 25- 50 mcq fentanyl, 3 also received midazolam as they felt slightly uncomfortable.

The mean time from induction of anesthesia until the start of surgery was significantly higher in SA group 13+/- 2 minutes compared to GA group 7 +/- 2 minutes. operating time and PACU stay and length of hospital stay were similar for both groups.

The incidence of postoperative anesthesia relating complications was nearly the same in both groups. But pain control in the 1st 24 hours postoperatively was more convenient in SA group specially in the immediate postoperative periods and extends up to 4 hours before supplemental analgesics prescribed were being given.

This study reveals no significant difference between both groups on the postoperative mortality and morbidity regarding the anesthetic route, (SA or G.A) in elderly gynecologic patients with coexisting medical illnesses.

DISCUSSION

This study was performed to assess the impact of the type of anesthesia on morbidity and mortality in elderly high risk patients undergoing pelvic organ prolapse. The notion that anesthetic type can have an impact on clinical outcomes that extends well beyond the perioperative period has gained an interest in recent times.[9] Puplished evidence suggests multiple advantages of SA over GA in a wide range of other surgical specialties.[10,11], to justify our study it was important to look for possible disadvantages of SA, anesthetic time for example was considerably longer than G.A, although in many other similar studies involving higher numbers of patients there were no significant difference and there were no difference regarding operating time and early recovery time.[12] There were no difference in postoperative nausea, vomiting, and analgesic use except for some patients in SA who did not ask for analgesic in the 1st 3-4 hours postoperatively.

Objective finding in POP surgery may not match the subjective symptoms improvement. Our study revealed significant improvement in POP symptoms with no difference between the two anesthetic types used. Additionally, the 4-8 weeks postoperative follow up data obtained from the patients together with the follow up investigations and physical examinations to detect events of postoperative complications that may be encountered to anesthesia type demonstrated no difference between both anesthetic groups. In our study we discovered that conventional spinal anesthesia may delays recovery owing to prolonged motor and sympathetic block induced by the administered dose of intrathecal local anesthetics compared to the relatively new and widely accepted selective SA; which is defined as "the practice of employing minimal doses of intrathecal agents so that only the specified nerve roots supplying a specific area being mainly targeted by SA.[13,14]

In conclusion, this study tends to highlights that SA and GA seem to have similar outcomes following POP surgery with no significant impact on postoperative morbidity and mortality in elderly high risk women, but it worths to tell that SA may reduce hospital staying time in some POP surgery thereby reducing the incidence of hospital acquired infections and may facilitate healing besides the impact on the quality of life for early discharged patients.

REFERENCES

1. Olsen AL, Smith VJ, Bergstrom JO, et al. Epidemiology of surgically managed pelvic organ prolapse and urinary incontinence. Obsetet Gynecol, 1997; 89(4): 501_506. https://doi.org/10.1016/S0029-7844(79)00058-6.
2. Wu JM, Kawasaki A, Hundley AF, et al. Predicting the number of women who will undergo incontinence and prolapse surgery, 2010 to 2050. Am J Obstet Gynecol, 2011; 205(3): 230 e231-235. http://doi.org/10.1016/j.ajog.2011.03.046.
3. Lambrou NC, Buller JL, Thompson JR, et al. Prevelance of perioperative complications among women undergoing reconstructive pelvic surgery. Am J obstet gynecol, 2000; 183: 1355-1360.
4. Toglia M, Nolan T. Morbidity and mortality rates of elective gynecologic surgery in elderly women. Am J Obstet Gynecol, 2003; 189: 1584-1589.
5. Bukkapatnam R, Shah S, Shlomo R, et al. Anterior vaginal wall surgery in elderly patients: outcomes and assessment. Urology, 2005; 65: 1104-1108.
6. Nvgaard KK. Routine spinal anesthesia in provincialhospital: with comparative study of postoperative complications following spinal and general ether anesthesia. Acta Chir Scand, 1963; 78: 379-446.
7. Rodgers A, Walker N, Schung S, et al. Reduction of postoperative mortality and morbidity with epidural or spinal anesthesia: results from overview of randomized trials. BMJ, 2000; 321: 1493.

8. Park WY, Thomson JS, Lee KK. Effect of epidural anesthesia and analgesia on perioperative outcome: a randomized, controlled veterans Affairs cooperative study. Ann Surg, 2001; 234-560-71.
9. Sessler DI (2009) Long-term consequences of anesthetic management. Anesthesiology, 111(1): 1-4.
10. Rodgers A Walker N, Schung S, McKee A, Kehlet H, van Zundert A, sage D, Futter M, Saville G, Clarck T, MacMahon S (2000). reduction of postoperative mortality and morbidity with epidural or spinal anesthesia : results from overview of randomized trials. BMJ, 321(7275): 1493.
11. Macfarlane AJ, Prased GA, ChanVW, Brull R(2009) Does regional anesthesia improve outcome after total hip arthroplasty ? A system artic review. Br J Anesth, 103(3): 335-345.
12. B.Purwar. K. M. Ismail. N. Turner. A. Farrell. M. Verzune. M. Annappa. I. Smith. Zeiad EL-Gizawy. J. C. Cooper, General or spinal anesthetic for vaginal surgery in pelvic floor disorders (GOSSIP): a feasibility randomized controlled trial. DOI 10.1007/s00192-015-2670-4.
13. Vaghadia H (1998) Spinal anaesthesia for outpatients: controversies and new techniques. Can J Anaesth, 45(5 Pt 2): R64–R75.
14. Korhonen AM (2006) Use of spinal anaesthesia in day surgery. Curr Opin Anaesthesiol, 19(6): 612–616. doi:10.1097/ACO. 0b013e32801042c7.