



TIME, TREND AND TECHNICITY: QUALITY ASSESSMENT FOR HYSTERECTOMIES IN SUBURBAN TERTIARY CARE CENTRE

Obstetrics & Gynaecology

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ABSTRACT

Background: Minimally invasive surgery is the surgical approach of choice for the management of numerous benign and malignant gynaecological conditions of uterus that has come up in the last 2-3 decades. Although their superiority has been assessed objectively over traditional method. To qualitate this Technicity Index (TI) has been introduced which is defined as number of minimally invasive hysterectomies (Vaginal Hysterectomy, Laparoscopic Assisted Vaginal Hysterectomy, Robotic Hysterectomy, Laparoscopic Hysterectomy) divided by total number of hysterectomy cases over a given period of time.

Method : Retrospective study of 1411 patients who underwent hysterectomy over a duration of 6 years in a suburban tertiary care centre were included in the study. For the purpose of evaluation of Technicity Index (TI) only 1347 hysterectomies were included excluding 64 hysterectomies which were done for obstetric indications. Data regarding age, parity, indication for hysterectomy and route of hysterectomy was collected and analyzed.

Result: Out of 1347 hysterectomies 25 were performed laparoscopically (1.85%), 700 were performed vaginally (51.96%) and 622 were performed by abdominal route (46.17%). The average TI was 55% and it ranged from as low as 46.9% to as high as 64.5% as the trend changed over the years.

Conclusion: Quality of care is determined by duration of surgery, length of stay, rate of complications, quality of life. There have been many studies affirming the advantages of vaginal and laparoscopic hysterectomies over the traditional abdominal route. Complications like secondary wound infections are higher and are also associated with poor cosmetic results. Technicity index is a novel method of objective assessment of the difference between various health care indicators and this practice helps as a quality indicator and will improve the health care of the patients.

KEYWORDS

Hysterectomy, Technicity Index, Quality Assessment, Health care indicators

INTRODUCTION

Hysterectomy is one of the commonest operation done in the field of gynaecology. It is performed for various benign indications like uterine leiomyoma, abnormal uterine bleeding, endometriosis, pelvic organ prolapse and chronic pelvic pain etc.¹ Hysterectomy is done for malignant indications as well as for obstetric indication. In obstetrics it is done for acute hemorrhage which is refractory to medical management.

To deal with various indications, various approaches for doing hysterectomy are vaginal hysterectomy (VH), total laparoscopic hysterectomy (TLH), total abdominal hysterectomy (TAH), laparoscopic assisted vaginal hysterectomy (LAVH) and robotic hysterectomy (RH). Minimally invasive surgery is the surgical approach of choice for the management of numerous benign and malignant gynaecological conditions of uterus that has come up in the last 2-3 decades. In India traditional method of removing uterus had been abdominal or vaginal route.

Factors that determine the choice of route depends upon uterine size, vaginal accessibility and type of pathology.² Also a shared decision between the patient and the surgeon forms the basis for deciding on the route of hysterectomy.

To improve the quality of patient care, quality indicators have come into play. These are defined as specific and measurable elements of practice that are used to assess the quality of patient care.³

With changing time and advancing technology minimally invasive surgery have come up and is on rising trend. Vaginal hysterectomy and laparoscopic hysterectomy are considered main group of minimally invasive procedure.⁴ It has been seen that five domains of choosing minimally invasive surgery over other surgery are duration of surgery, length of hospital stay, rate of complication, cost effectiveness and quality of life.

Technicity index (TI) is a quality indicator which has been used in gynaecological surgery with regards to hysterectomy. Technicity Index is defined as number of minimally invasive hysterectomies (Vaginal Hysterectomy, Laparoscopic Assisted Vaginal Hysterectomy, Robotic Hysterectomy, Laparoscopic Hysterectomy) divided by total number of hysterectomy cases over a given period of time.⁵

It was first used in France in 2008 reporting only 10% of hysterectomies being done by minimally invasive route.⁶ In Canada the average TI during 2008-2009 was reported as to be 30%.⁷

Factors influencing it, can be divided as patient's characteristics (surgical indications, comorbidities and demography) and provider background (surgeon's training, hospital geographic variations) 100% technicity is not possible as minimally invasive surgery may not be suitable for hysterectomy in case of certain malignancies like ovarian malignancies and for obstetric hysterectomies.⁸

To our knowledge no study on Technicity Index has been published from North India region and thus this study aims at assessing the quality indicator via means of calculating Technicity Index in a suburban tertiary care centre of a developing nation.

MATERIAL AND METHOD

The study was carried out in the department of Obstetrics and Gynaecology of a tertiary care centre in North India. Retrospective study of 1411 patients who underwent hysterectomy over duration of 6 years were included in the study. For the purpose of evaluation of Technicity Index (TI) only 1347 hysterectomies were included, as rest 64 hysterectomies were done for obstetric indications, which could have been done only by abdominal route and thus avoiding number bias. Duration of the study was for 6 years starting from 1st January 2014 and ending in 31st December 2019. The year 2020 was not taken into account as it was affected by COVID-19. Case records from medical record section were taken. Consent from the competent

authority was taken to proceed with the research. Operations were done in a standard setup by senior gynaecologist.

Data regarding age, parity, indication for hysterectomy and route of hysterectomy was collected.

Data obtained was analyzed using descriptive statistics including Tables and Bar Diagrams and Line Chart and presented in the form of percentages.

STATISTICAL ANALYSIS:

SPSS for windows version 16-0.1.5 (SPSS software Chicago) was used.

RESULT

Over all a total of 1347 hysterectomies done during the period 2014-2019 were included in the study excluding obstetric hysterectomies. Out of 1347 hysterectomies 25 were performed laparoscopically (1.85%), 700 were performed vaginally (51.96%) and 622 were performed by abdominal route (46.17%) and rest were done for obstetrical conditions. The average TI was 55% and it ranged from as low as 46.9% to as high as 64.5% as the trend changed over the years. (Table 1)

Table 1: Trend in hysterectomy over the period 2014-2019

Year	TAH	TLH	VH	Total	TI %
2014	79	6	107	192	58.8%
2015	62	1	112	175	64.5%
2016	72		86	158	54.4%
2017	94		114	208	54.8%
2018	176	3	153	332	46.9%
2019	139	15	128	282	50.7%
	622(46.17%)	25(1.85%)	700(51.96%)	1347	

Vaginal Hysterectomy (VH)

Total Laparoscopic Hysterectomy (TLH)

Total Abdominal Hysterectomy (TAH)

Technicity Index (TI)

It started with 6 TLH and 107 VH in the year 2014 with a TI of 58.8 %. No TLH was performed in the year 2016 and 2017 due to nonavailability of laparoscopic surgeon in the institute. Maximum number of Total Laparoscopic Hysterectomies (15) were done in the year 2019. Maximum number of Vaginal Hysterectomies (153) were done in the year 2018. This changing trend can be clearly noted in Figure 1.

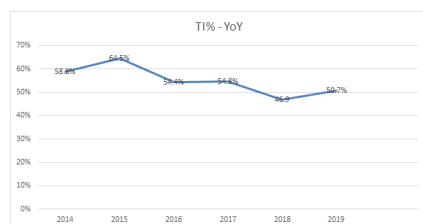


Figure 1: Line Diagram Showing Technicity Index Over The Period 2014-2019

On comparison between minimally invasive route and abdominal route, it was found that with the changing time, upcoming technology and increase in number of trained surgeons to implement the technique there has been an increase in the number of minimally invasive surgeries. Abdominal route still is still chosen by many standing only a little behind when compared to lesser invasive routes of hysterectomy as seen in Figure 2.

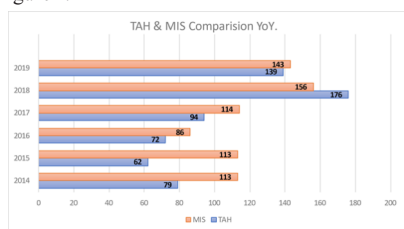


Figure 2 : Bar Diagram Comparing Number Of Abdominal Vs Minimally Invasive Surgeries Over The Years 2014-2019

DISCUSSION

Emerging technology resulting in changing operative trends in gynaecology gave an opportunity to the patients to benefit from the technique of minimally invasive surgeries. Technicity Index has been defined as the proportion of hysterectomies performed by a minimally invasive route is associated with better quality and patient care. There have been many studies affirming the advantages of vaginal and laparoscopic hysterectomies over the traditional abdominal route. With the abdominal approach, there is reduction in quality of life, longer hospital stays, and a greater time for convalescence. Complications like secondary wound infections are higher and are also associated with poor cosmetic results.⁹

The quality of care is determined by five criteria. first is duration of surgery. On an average vaginal hysterectomy requires less intra-operative time as compared to laparoscopic or abdominal route.¹⁰ Second is length of stay, papers have been published establishing same day discharge after laparoscopic approach.¹¹ Third is rate of complications it is a complex issue as each route has its own complications but in general it has been found that women who undergo VH have lowest complication rates.¹² Fourth is the cost factor which is also very difficult to define as it varies with various people from different socio- economic background. Vaginal Hysterectomy is often recognized as less costly whereas laparoscopic hysterectomy is associated with increased cost due to duration of surgery and use of disposable instruments. However, the cost compensates for shorter hospital stay when compared to other approaches.¹³ Fifth factor is quality of life, studies have concluded that vaginal hysterectomy and laparoscopic hysterectomy is associated with better quality of life than total abdominal hysterectomy as there is quicker return to normal activities.¹⁵

In a study done in Karnataka, India TI was found to be 23.05% at their institution.¹⁶

In Another study in Oman it was found that Technicity Index was 19% at their institution.¹⁷

Overall Technicity Index in present study was found to be high even after lesser number of Laparoscopic hysterectomies being performed as vaginal hysterectomy was the preferred route. This could be mainly attributed to the fact that there was more availability of trained expert and equipment in various years.

Increase in Technicity Index in year 2015 points towards availability of expert gynaecologist. It was not possible to compare this data with other Institutions as no data has been published on technicity index in North India.

Our strength was that we had large number of cases because of which we could also see the trend of Technicity Index over the years. Also because of expertise of our surgeons in vaginal hysterectomy we were able to give better quality of care to our patients in turn had a higher Technicity Index at our institution.

Limitation of this study was non availability of post operative follow up of patients.

When looking at different indications it was observed that 10.77% of cases were malignant and 4.5% cases were done for obstetric indications which could be possible reason for not choosing minimally invasive approach.

More research needs to be done in the area of quality indicator in order to know an optimum level of technicity required to improve the quality of life.

CONCLUSION

Technicity index is a novel method of objective assessment of the difference between various health care indicators occurring by two types of hysterectomy procedure first traditional abdominal and second by minimally invasive hysterectomy method. Along with this, this study has also highlighted the trend over the decade regarding two types of hysterectomy along with the reasons for insight into it. Study of Technicity Index practice will help as a quality indicator and will improve the health care of the patients.

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