

To Study the Association between Weather and Frequency of Cataract Surgeries performed over three years in four different hospitals of Lahore, Punjab

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ABSTRACT

Aim: To study the association between weather and frequency of cataract surgeries performed over the year in four different hospitals of Lahore, Punjab.

Place and duration of study: The data of 8375 patients who underwent cataract surgeries over last three years 2017, 2018 and 2019 from four different hospitals, Medicare Eye hospital, Jinnah Hospital, Akhtar Saeed Trust Hospital and Lahore General Hospital, was collected.

Study design: It was a cross sectional survey. Non-probability conventional sample was used. The data was analyzed by SPSS-20 and presented in forms of bar charts and line graphs.

Methods: Total 8375 patients were selected from previous records for our study from four different centers. The hospitals were Akhtar Saeed trust hospital, Jinnah hospital, Lahore general hospital and Lahore Medicare Eye center. Lahore General hospital (LGH) and Jinnah Hospital are from government sector. Akhtar Saeed Hospital is a trust hospital and Lahore Medicare is a private Hospital. All patients with unilateral or bilateral cataract with age above 40 years were included where as patients under 40 years, cataract planned under general anesthesia and patients who had cataract associated with retinal attachment were excluded.

Results: Total patients included in our study were 8375. There were 4439 (53%) men and 3936 (47%) women. Out of these 3721 (44.43%) from Jinnah hospital, 2498 (29.83%) were from Lahore General Hospital, 1676 (20.01%) from Medicare and 480 (5.73%) from trust Hospital. In Jinnah hospital, the highest number of cataract surgeries were observed in months of March 500 (13.44%), October 375 (10.08%) and February 341 (9.16%) and months with a smaller number of cataract surgeries were July 201 (5.40%), June 185 (4.9%) and August 170 (4.57%). In LGH three months showing maximum number of patients were October 313 (12.53%), November 285 (11.41%) and April 281 (11.25%) and minimal in July 158 (6.33%), August 128 (5.12%) and June 99 (3.96%).

Conclusion: It was clear from results of our study that higher number of cases were seen in months of March, April and October and the lowest number of surgeries were observed in months of June, July and August on an average. A definite seasonal variation was observed in number of cataract surgeries performed over the year, in different eye hospitals of Lahore (Punjab) Pakistan.

Keywords: Cataract, Surgery, Seasonal variation

INTRODUCTION

Sight is precious, and vision is a blessing. Cataract is mostly an age-related process, defined as opacification of crystalline lens. A simple and cost-effective operation can result in restoration of vision and life is worth living with good vision¹⁻³. Nearly 1.34 billion people are suffering from some sort of visual disability or impairment in world⁴. Among the various conditions responsible for preventable blindness, cataract (66.7%) was found to be the major cause of blindness. Both public and private sectors are contributing towards vision restoration and visual rehabilitation of patients. It is seen that elite and rich people in our country like to contribute a lot in form of donations, charities and funds. Pakistan is ranked 91st most generous country out of 144 world nations⁷. An international cancer hospital, Shaukat Khanum Hospital, Lahore is a big

Example which was constructed out of people funds⁸. Three medical fields, Ophthalmology, Gynecology and Cancer share major contribution from people donations. Many charitable organizations and trust hospitals in Ophthalmology provide free services for needy and non-affording patients.

Pakistan is a big country, blessed with all types of demographical areas ranging from mountains to plains. There are four different seasons, summer, winter, autumn and spring. The temperature variations over the year is remarkable. It can be as low as 0C⁰ in winter nights to as high as 55 C⁰ in noon of summer season. The rainy season, monsoon usually last from July to August.

MATERIALS AND METHODS

Total 8375 patients were selected from previous records for our study from four different centers. These hospitals were Akhtar Saeed trust hospital, Jinnah hospital, Lahore general hospital and Lahore Medicare Eye center. Lahore

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General hospital (LGH) and Jinnah Hospital are from Govt sector, Akhtar seed Hospital is a trust hospital whereas Lahore Medicare eye center is a private Hospital. All patients with unilateral or bilateral cataract with age above 40 years were included whereas patients under 40 years, cataract done under general anesthesia and cataract associated with retinal detachment were excluded. All patients had hepatitis B, C screening and surgery was planned under topical or local anesthesia after detailed ocular examination in OPD. These patients had either phacoemulsification or extra capsular cataract extraction (ECCE) with intraocular lens implantation (IOL) after informed and written consent.

RESULTS

Total 8375 patients were included in our study, 4439 (53%) men and 3936 (47%) women. Out of these 3721 (44.43%) from Jinnah hospital, 2498 (29.83%) were from Lahore General Hospital, 1676 (20.01%) from Medicare and 480 (5.73%) from trust Hospital. In Jinnah Hospital, the highest number of cataract surgeries were observed in months of March that were 500 (13.44 %), October 375 (10.08 %) and February 341 (9.16 %) and months with a smaller number of cataract surgeries were July 201 (4.97 %) and August 170 (4.57%). In Lahore General hospital three months showing

maximum number of patients were October 313 (12.53%), November 285 (11.25 %) and April 281 (11.25%) and minimal in July 158 (6.33 %), August 128 (5.12%) and June 99 (3.96 %). For Medicare Eye Hospital top three months regarding number of cataract surgeries patients were April 169 (10.08%), October 172 (10.26%) and November 168 (10.02%) and bottom 3 months were September 115 (6.86 %), February 114 (6.80%) and August 94 (5.61%). Maximum number of cataract surgeries in Akhtar Saeed Trust Hospital were March 64 (13.33 %), November 56 (11.66%) and October 53 (11.04 %) and minimal in months of July 29 (6.04 %) and August 18 (3.75%). These are shown in table 1. Figure 2 shows bar charts of total number of cataract surgeries operated in last three years over 12 months. A line chart in figure 3 shows total number of patients operated in four different hospitals for cataract month wise. The average number of patients over last three years collectively from all four hospitals is shown in figure 4 as line graph. It was clear from figure 4 that highest number of cases were seen in April 1012 (12.08 %), October 913 (10.90%) and March 852 (10.17%) and the lowest number of surgeries were observed in months of July 534 (6.38%), June 435 (5.79%) and August 410 (4.90%) on an average.

Table showing total no of cataract surgeries in 4 hospitals over last 3 years

Months	AMDC				LGH				Medicare				Jinnah Hospital				Total
	2017	2018	2019	Total	2017	2018	2019	Total	2017	2018	2019	Total	2017	2018	2019	Total	
January	8	15	9	32	54	71	80	205	29	57	51	137	70	109	87	266	640
February	18	17	8	43	86	45	62	193	42	44	28	114	125	142	74	341	691
March	14	31	19	64	103	20	38	161	54	25	48	127	159	218	123	500	852
April	11	20	18	49	86	114	81	281	33	60	76	169	142	168	203	513	1012
May	15	16	14	45	70	55	48	173	54	55	47	156	103	104	78	285	659
June	11	1	9	21	48	31	20	99	23	24	83	130	44	56	85	185	435
July	11	11	7	29	101	39	18	158	48	44	54	146	65	54	82	201	534
August	11	3	4	18	69	24	35	128	47	24	23	94	59	52	59	170	410
September	24	8	7	39	76	48	118	242	37	50	28	115	111	79	78	268	664
October	23	14	16	53	95	122	96	313	47	74	51	172	173	152	50	375	913
November	23	12	21	56	97	82	106	285	61	53	54	168	130	98	104	332	841
December	13	12	6	31	83	109	68	260	52	45	51	148	94	93	98	285	724
Total	182	160	138	480	968	760	770	2498	527	555	594	1676	1275	1325	1121	3721	8375

Fig. I: Bar charts showing monthly total cataract surgeries in 4 hospitals over 3 years

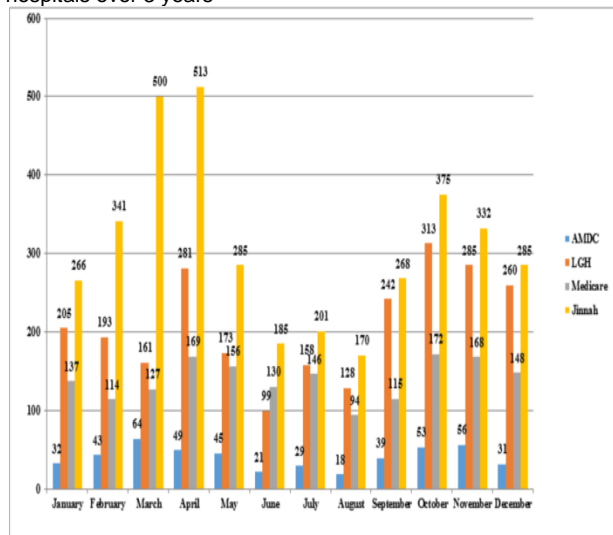


Fig. II: Line chart showing total cataract surgeries in last three years from 4 hospitals

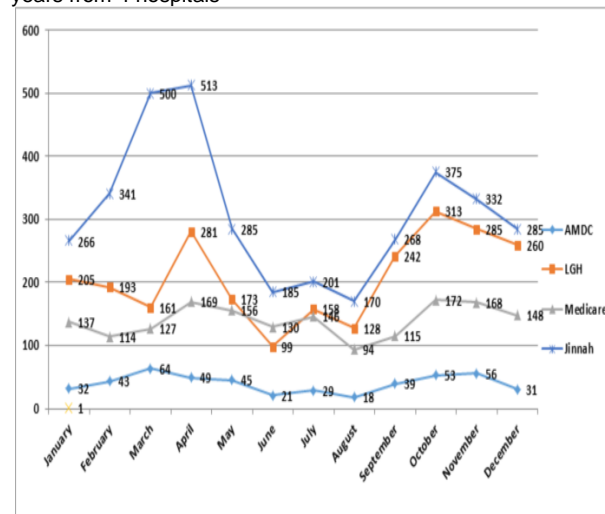
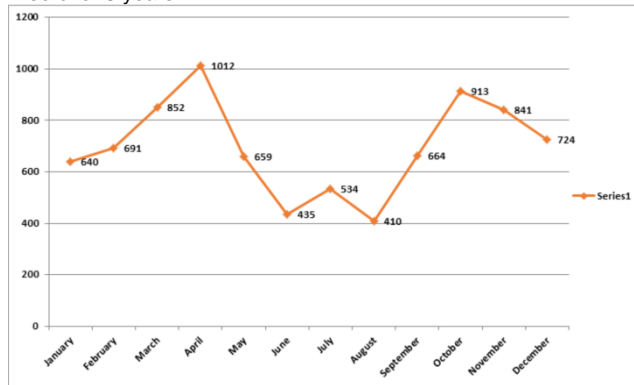


Fig. III: Line chart showing total no of cataract surgeries month wise over 3 years



DISCUSSION

The surgical treatment of cataract dates to 5th century BC by using a technique called couching^{9,10}. Mahar Shi Sushruta was ancient eye surgeon in subcontinent in 6th century BC¹¹. From a simple method of couching with a needle to femtolasar, cataract surgery has seen many sophisticated modifications and variations which are in practice now a days in world.

The cataract surgical services have grown substantially in Pakistan in past 10 years¹². It is the technology which shows changes and developments over the time, but patient's beliefs are usually firm and take time to change and remold. According to statistics gathered from different hospitals of Lahore it was clear that most patients preferred two months in the beginning of year (March, April) and two months at year end (September, October) to go for elective cataract surgeries. We suppose that multiple factors are responsible for this bimodal distribution of patients with two peaks, like patient personal myths and believes, agricultural background of people in Punjab and economic resources.

There is a general attitude of patients that they like to avoid elective surgeries like cataract in extremes of weather, like in very hot or chilling conditions. The temperature range in our country Pakistan is variable over 12 months of year. Its chilling in winters (0 C⁰ to 10 C⁰) and burning hot in summer (45 C⁰ to 50 C⁰). The problem of power failure and load shedding is still a major issue faced by people in summer season, especially in rural areas, so lower middle class and poor population find it difficult to manage an older patient post cataract surgery, due to sweating and perspiration, unless resources like electricity and air conditioner is available. However, the ocular surgeries due to emergency medical conditions which need an urgent surgical treatment like lens induced glaucoma continue throughout the year.

There is another concept that wound healing is impaired in rainy and humid season like in monsoon, so they avoid ocular operations in July and August. This is also supported by reports from south Korea where increased rates of endophthalmitis were seen among patients operated in rainy and humid season.¹³

Pakistan is a society where 45% of population is dependent on agriculture, directly and indirectly¹⁴. An economic boom is clearly observed phenomena at the end

of two harvesting seasons, especially in rural areas. The Rabi crop (wheat) is sown in October to December and harvested in April – May and Kharif crop (rice, sugarcane, cotton) is sown in month of April to June and harvested during October – December^{15,16}. In rural areas of Punjab increased number of cataract surgeries are observed in months of April and October after harvesting when socioeconomic condition of people is better, and weather is moderate and pleasant. Similar trend is also observed in a neighboring country, Nepal where more people had their cataract extraction in winters than summers¹⁷. Studies have showed that the free camp surgeries for cataract, which is an old trend in Asia¹⁸, are also arranged in March, April or in October in Nepal, Sri Lanka, India and Pakistan¹⁹.

As most of population in Pakistan belongs to religion Islam²⁰, least number of cataract surgeries are observed during month of Ramadhan, on occasion of Eidul Fitr & Eidul Adha and in month of Muharram, owing to Muslim religious affiliation and associations.

These statistics of cataract surgeries were collected over three years, 2017, 2018 and 2019. A gross decrease in number of ocular elective surgeries is observed after implication of lockdown which started first time from March 2020. Although comparative studies are not available, but such variation were not observed in Karachi (province Sindh), probably due to non agricultural industrialized background. More studies at vast levels are required to watch the trend.

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CONCLUSION

It was clear from results of our study that high number of cases were seen in months of March, April and October and the lowest number of surgeries were observed in months of June, July and August on an average. A definite seasonal variation was observed in number of cataract surgeries performed over the year, in different eye hospitals of Lahore (Punjab) Pakistan.

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