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About the Journal

Liaquat Medical Research Journal is the print, online, double blind, peer-reviewed, quarterly released journal devoted to publishing innovative biomedical research and scholastic / academic content from all fields of medical sciences, concentrating on innovative clinical, diagnostic and perspective preventive research.

Aims & Scope

The Journal aims to publish research in all fields of clinical, diagnostic, experimental & preventive areas related to medical sciences to disseminate scholastic work among clinicians and scientists around the globe.

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Artificial intelligence in surgery

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Health care is going to be more dependent on machines and machine will automate all human jobs in less than a century. Are the machines going to take over the human mind?

"Artificial intelligence (AI) can be defined as the lesson regarding algorithms that give machines to reason and solve cognitive problems" [1].

There are five most disruptive technologies: artificial intelligence, blockchain, 3D printing, virtual reality / augmented reality, and internet of things[2]

There are four subfields of AI :[3]

1. Machine learning (ML): It is a process by which machines can make predictions based totally on distinguishing stability patterns.

It consists of supervised learning (partial labelling of the data), unsupervised learning (structure detected among the facts itself after explaining in conformity which make predictions regarding data without explicit programming) and reinforcement.

2. Natural language processing: is the computer's ability according to recognize human word in conformity with analyze textual facts like electronic medical records.
3. Artificial neural network: Processes features from data as inputs for activation to give output like neurons.
4. Computer visions help in understanding videos to apprehend scenes and objects.

Artificial Intelligence has made revolution in many medical fields, including:

1. Radiology: AI is popular in radiology due to improvement in image-recognition tasks
2. Oncology: Breast cancer and lung cancer diagnosis, staging and clinical outcome predictions are areas in which AI application have proved its efficacy .[4]
3. Ophthalmology: Early detection and diagnosis of Diabetic retinopathy and retinal detachment are increased by AI[5]
4. Cardiology: AI, by utilizing patients Electronic medical records (EMRs) had a better predictive value while making decision regarding management of angina to undergo coronary artery bypass grafting (CABG) or percutaneous cardiac intervention resulting in reduced mortality [6]
5. Gastroenterology: It enhance detection of gastrointestinal tract cancers.[7]
6. Pathology: AI may operate by improving the work of evaluating gross features or assessing quantitative tasks like mitoses per high power field. AI saves the time and pathologists edit early or well-timed diagnosis.

Role in surgery

1. Preoperative risk prediction: Risk prediction guides patient-centered decisions to evaluate both operative candidacy and predict possible postoperative complications. Examples are the Revised Cardiac Risk Index (RCRI) and Gupta Perioperative Risk for Myocardial Infarction or Cardiac Arrest (MICA) [8]
2. Surgical Training: AI promises the Cognitive revolution that will require few doctors and different training in probability and statistical learning to interpret algorithms that will help them in patient care. AI will change the system of surgical credentialing as the present system fails to test required surgical skills. When new technologies or procedures are introduced intraoperative. Global positioning system (GPS) will train the surgeons and the automated video assessment will certify.
3. The Diagnosis: The Diagnostic accuracy and early diagnosis of surgical emergency is improved by visual analysis of medical images as in acute appendicitis and fractures in orthopedics.
4. Intraoperative video analysis: Video analysis by AI decreases the morbidity and mortality in cholecystectomy (86.7%), sleeve gastrectomy (85.6%) and sigmoidectomy (91.9%).[9]
5. Electronic Health Records: It helps for risk calculation and resource management. AI integrates the preoperative knowledge with the intraoperative events and postoperative outcomes of each individual

6. The automation: The robotic surgery has instruments that need to be operated by surgeon seated in console (supervised) but in AI ultimately the instruments operations will be autonomous.
7. Operation theatre: It leads to efficient time management and improved patient safety by controlling workflow in operation theatre.

Limitations

Al and ML obviously will not answer all the unsolved problems in surgery and in certain situations conventional assessment methods will be superior then using ML.[10] But undoubtedly ML and other AI analyses are highly data driven and the outputs are naturally limited by the types and accuracy of available data. Thus, AI predictions and patterns are affected by the systematic biases in clinical data collection

Professor Stephen Hawking has warned that AI will be "either the best, or the worst thing, ever to happen to humanity".[11]

Conclusion

AI should be implemented to improve performance, time efficiency and reducing cost. The patient care can be improved by early detection and diagnosis, decreasing medical errors and decreasing morbidity and mortality in surgery .AI is not replacing human physicians, but assists the medical care. Surgeons as leaders can educate stake holders about AI.

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Case report

Two Ports Suture-less Laparoscopic Appendectomy using the new Enseal Device and Ultra Grasper safe and feasible

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ABSTRACT

This operation was performed by me (1) in pre-conference surgical workshop day 2 at Minimal Invasive Sur- gery Centre, Liaquat University of Medicine and Health Sciences (LUMHS) on 20th November 2019.

A 22 years old female resident of Hyderabad presented the Out Patients Department with complain of right iliac fossa pain associated with vomiting for the past 4 days. Physical examination was significant for tender- ness and rebound tenderness in RIF region, Rovsing's sign was positive. She was diagnosed as a case of acute appendicitis. After obtaining an informed consent she underwent 2-ports laparoscopic appendectomy under general anaesthesia. In this case we did not use any sutures or clips. Mesoappendix was divided and appendi- cectomy performed with Enseal device. Haemostasis was secured and wound closed with Vicryl 2.0. Patient made uneventful recovery and was discharged on the first postoperative day. We would therefore like to con- clude that the suture-less 2-ports appendectomy was considered safe, reliable, and more minimal invasive, with decreased hospitalization duration and decreased risk of postoperative complications.

Key Words: Appendectomy, Minimal Access Surgery, Suture Less, Energy Device, Ultra Grasper.

INTRODUCTION

Appendectomy is one of the most frequently performed emergency procedures in general surgery on a day to day basis in emergency setting. There are various novel surgical approaches, routes and techniques used for this procedure from open surgical McBurney's large incisions to minimally invasive laparoscopic assisted, total laparoscopic multiport, natural orifice trans-luminal endoscopic surgery (NOTES), to hardly noticeable incisions with single-incision laparoscopic (SILS) and as a conduit between conventional laparoscopic surgery and SILS, double-incision laparoscopic (DILS) surgery dramatically reduces the number of incisions making it further minimally invasive procedure(1-6).

Initially Laparoscopic appendectomy was designed as a three-port technique to maintain triangulation and optimum visibility. Three ports traditionally involved umbilical port, suprapubic and LIF ports. Over the years, laparoscopy surgeons have become more skilled and their learning curves have decreased and are able to perform laparoscopic appendectomies with double and even single port incision. Both single and double ports have been considered safe and feasible (7-10). Double incision laparoscopic surgery (DILS) is highly accepted by patients for its aesthetic results and is considered economically efficient (11) and is does not

reported to be associated with any additional complications. Use of standard two ports and an additional port less needle grasper is feasible (12) when loss of retraction becomes a challenge. Single port presents with many advantages such as enhanced cosmetic results and reduced abdominal trauma (13). However single port provides the challenge of instrumental clashes and loss of triangulation and can involve a longer operative time (13) which was found to decrease with experience of at least 51 cases (14). We therefore have come up with a different solution, i.e. a standard double port combined with a 2 mm suprapubic incision for using cutting energy device. Suprapubic region incision is smaller than standard port.

Case History

A 22-year-old lady presented to general surgery department with pain in right iliac fossa (RIF) region for 4 days. On clinical examination she was tender and rebound tenderness in right iliac fossa (RIF), the Rovsing's sign was positive. After taking a complete medical history, clinical examination the clinical diagnosis was acute appendicitis, a blood test and abdomen ultrasound were performed. She was admitted into the surgical ward for confirmation of the diagnosis. Her past medical history was unremarkable; she didn't take any medication or have any allergies. The laboratory investigations showed leucocytosis (WBC15,000), c-reactive protein was raised, and the ultrasound showed free fluid in the right iliac fossa region with normal ovaries and uterus and urinalysis was unremarkable. She was discussed, informed consent was taken for appendectomy via laparoscopic approach +/- open appendectomy under general anaesthesia. The patient was also consented for a demonstration of the operation in the pre- conference surgical workshop.

INVESTIGATION

Blood group:	AB positive
Haemoglobin:	10.2 g/dl
Platelet count:	225,000
RBS:	99mg
Urinalysis:	Normal
LFTs:	Normal

Coagulation profile: PT, APTT were carried out andwere normal Hepatitis B and C screening: Done with Elisa and both were negative

Ultrasound findings: Free fluid in the right iliac fossa with normal ovaries and uterus, both kidneys, gall bladder and liver were normal.

TREATMENT

The patient was prepared for 2-port laparoscopic appendectomy under general anaesthesia. Two ports were used, one 10 mm port for the cam- era in the infra umbilical region with open Hasan technique and a 5mm port in left iliac fossa for the 7mm Enseal energy device under direct visualization. After insertion of the first port in the infra umbilical re- gion the pneumoperitoneum was created with carbon dioxide and maintaining pressure of 15mmHg. A 2mm puncture was made in the supra pubic region for the use of the ultra-grasper, Figure1.

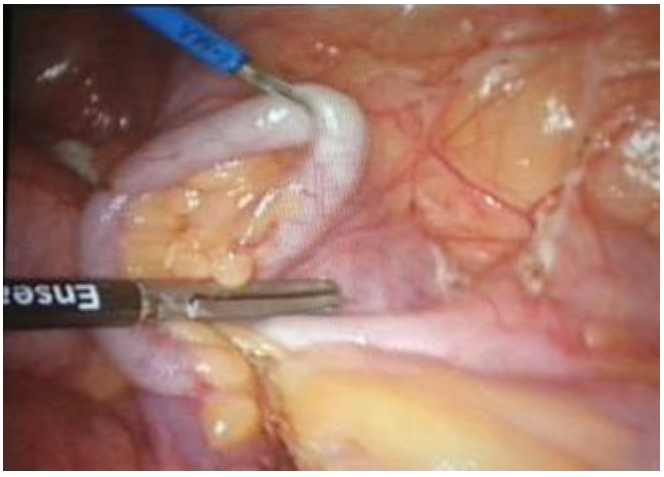

Fig 1. Use of ultra-grasper during appendectomy

The appendix was identified and mobilized, the mesoappendix was separated with Enseal energy device. The appendectomy was performed by using the Enseal device. Therefore, no suture or clips were used in this tech-nique. Haemostasis was ensured and abdominal wounds were closed with J needle Vicryl 1. The skin was closed with vicryl 3.0 undyed. The recovery of the patient was uneventful. The patient was discharged on the first

postoperative day. The patient was followed up within 6 weeks' time in the clinic, there was no postoperative complications seen. The wound was healed nicely.

DISCUSSION

Appendectomy is one of the most common emergency abdominal surgeries performed and its rate is about 7% in the general population (15). There are a number of surgical approaches for appendectomy, however open and multiport laparoscopic appendectomy remain the most commonly used modalities. Most commonly used standard procedure has been performed as open mode via classical McBurney's incision or right paramedian incision. During past few decades laparoscopic surgery has revolutionized operative medicine. Even though it was met with heavy criticisms in the early years, but in the recent time minimally standard surgery is becoming the gold standard and many procedure including appendectomy. Natu- ral orifice transluminal endoscopic surgery (NOTES) and SILS is another step towards less invasive surgical procedure as an alternative (16). Single incision Appendectomies have been performed since 1992, where the appendix is inveigled through umbilicus (17). SILS has advantages over lapa- roscopic surgery without most of the downsides, in addition it is reported to be less expensive and can be done in a hospital equipped with basic laparoscopic set-up (18) (19), and can be combined with regional anaesthesia (20). However, unlike in multiport technique, placement of second and third trocars is more difficult as the close proximity of trocars precluded intraperitoneal visualization of port entry (21). Lack of triangulation is another challenge faced using SILS resulting in instrumental clashes or the "chopsticks" effect, and difficulty faced with SILS is retrieval of appen- dix under vision (22). SILS is also linked with longer operation times and higher immediate postoperative pain scores compared to DILS patients (23). The increased diameter of the umbilical incision used in SILS has thought to be related to post-operative complication of incisional hernia, but this has been proven to have little correlation instead pre-existing hernia and obesity are linked to a higher risk of incisional hernia (24). The double incision laparoscopic appendectomy in comparison to conventional laparoscopic appendectomy present with equivalent outcomes but with supe- rior cosmetic outcomes (9). DILS is also associated with significantly lower pain score 12 hours after surgery in comparison to conventional laparo- scopic appendectomy (25). Two-port laparoscopic appendectomy used as an in-between step, with maintenance of appropriate counter-traction (26) which allows this to be used as a safe procedure.

The present case was of acute appendicitis and presented with RIF pain for 4 days associated with fever and vomiting. Similarly, Kothadia JP *et al.,* (27), reported that a 39-year-old male patient of dormant proctitis presented with intermittent sharp stabbing right lower quadrant (RLQ) pain for six months. Another case reported by Mengesha MD *et al.,* (28), stated that a 29-year-old male admitted with a complaint of chronic (ie 18 years) history of recurrent right lower quadrant pain associated with constipation, anorexia, mild fever, chills and malaise. With this case, suture-less 2- port appendectomy was considered as best management option for appendectomy in terms of reliability, non-invasiveness, with decreased surgical and hospitalization duration, with lower risk of postoperative complications. On other hand Bonatti HJ et al (12) believed that patients' benefits from this approach (two port laparoscopic appendectomy) leading to minimal surgical trauma by use of less and smaller incisions, these findings were in favour of this case study. Bajpai M *et al.,* (29), stated that the approach (suture-less laparoscopic appendectomy) avoids the use of an addi- tional port as well as endo sutures; and is safe, efficient, cost-effective, and is associated with reduced surgical time. Zubair M *et al.,* (30), also found that laparoscopic appendectomy with suprapubic camera port was a safe and attractive option. The authors concluded that the procedure can be preformed safely in cases of uncomplicated and shorter duration of symptoms appendicitis and easy accessible anatomical position (26).

CONCLUSION

Suture-less 2-port appendectomy is a safe, reliable and non-invasive technique. This technique has

decreased operative time with decreased hospi- tal stay duration. Further randomized control studies should be conducted in order to compare the risks and benefits of this technique as opposed to standard three port technique.

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Research article

HIGH FLOW OXYGEN THERAPY MACHINE USING HIGH FLOW NASAL CANNULATION-A HOPE FOR COVID-19 PATIENTS IN ACUTE RESPIRATORY FAILURE

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ABSTRACT

OBJECTIVE: To provide humidified, heated and precise oxygen with high efficiency of Functional residual to acute respiratory distress syndrome patients caused by COVID-19.

METHODOLOGY: It was an observational research that took place at the LUMHS Hospital. In this study, 200 patients with severe respiratory distress, either caused by Covid-19 or other respiratory disorders, were enrolled. LUMHS hospital ICU ward was used as a data source. This study showed that subjects in their late 30s, both male and female. Patients with acute or chronic respiratory failure were included, but those with other pulmonary disorders were excluded.

RESULTS: A total of 200 patients were selected for this study. Out of them 122 (61%) were males and 78 (39%) were females with the Standard deviation of 2.33. Regarding age. 24%. Were below 30s. 20% patients were in 30s.and 57% belonged to above 30s. While the efficiency of HFNC was 65%. In 65% cases it was proved to be lifesaving and in 39% cases patients were sent for intubation. Oxygen delivery method using cannula was 65% in delivering SPO2 equal to or greater than 10 lpm while face mask method was only 35% successful, which determines that higher concentration cannulation is a more efficient method than facemask.

CONCLUSION: HFNC is a recent innovation that reduces the need for intubation and oxygen loss while also providing high-flow oxygen with optimum humidification and temperature to patients with respiratory failure

Key Words: COVID-19, Respiratory Distress, Syndrome, positive pressure respiration, cannula, chronic obstructive, respiration

INTRODUCTION

Various oxygen therapies are supposed to provide oxygen for oxygenation and breathing to respiratory failure patients, HFNC is an emerging and widely recommended oxygen therapy in developing countries these days. A modern technique that provides sufficient oxygen, adequate humidified and heated air with reduced complications and difficulties, since it is easy to run and high oxygen flow machines.[1] Clinically, this novel technique has gained considerable interest. For COVID-19 patients, most of the countries continued with this therapy because it provides highly saturated oxygen and successful quality makes this therapy exceptional and enhances its specialty. HFNC is a recent development in oxygen therapy. It supplies oxygen above 30L/mint with sufficient heating and humidification. For oxygen therapy, NIV and other oxygen therapies were previously incorporated while NIV and cop pairing proved to be very convenient for ventilation and NIV was also preferred for prolonged treatment of chronic obstructive pulmonary disease at home, although it can be exhausting and scary due to delivering high pressure in the airways, and it's too complicated to synchronize. Contrary to this, HFNC is a recent advance in oxygen therapy with sufficient oxygen supply[2]. Although HFNC has been used for neonates since 2000 and since then it has been an important part of oxygen therapy in pediatrics, HFNC has also been successfully used for adults with acute respiratory failure, having been universally recognized as an inherent part in hospitals worldwide, High-flow nasal cannula (HFNC) oxygen therapy

has gained attention as an innovative mechanical ventilation for severely sickly patients, particularly those with respiratory failure. At flow rate by up to 60 L/min, it provides adequate warmed and humidified medical gas and is proven to have a number of other advantages, which include anatomical elimination of empty space, positive end expiratory pressure (PEEP effects, continuous conservation of oxygen inspired fraction (FiO2) and heavy humidification effects.[3]. Oxygen treatment with high-flow nasal cannula (HFNC) is an oxygenation procedure first used in premature babies and most recently in intensive care units or patients that are postoperative. HFNC is able to provide up to 100% high and controlled FiO2, including during acute respiratory distress[4]. The benefits of HFNC over nasal persistent positive airway pressure, like its simplicity of utilization and enhanced tolerance for reduced nasal damage, have resulted in expanded use outside the intensive care unit as well[5].

In the early 2000s, HFNC was first adopted into clinical practice as a non-invasive system for the treatment of apnea in newborn infants and has since been well known in pediatrics, especially in respiratory failure triggered by bronchiolitis. Recently, this device is widely used in intensive care units particularly in respiratory units where it is commonly and frequently used, frequently replacing NIV in the superintendence of respiratory failure from a number of etiologies[2]. Earlier research on the feasibility of treatment with HFNC in the treatment of acute bronchiolitis comes mainly through observational work, although there are few randomized clinical trials that are significant. Furthermore, earlier studies compared HFNC treatment with less reliable, low-flow systems[6].

For initial respiratory management in young infants with mild to extreme AVB, we conducted a multicenter, randomized, non-inferiority study of HFNC compared with Ncpa[12]. Partial carbon dioxide pressure (PaCO2) declined in a lung-injured animal model as HFNC flow improved and PaCO2 decreased more successfully with enhanced gas release [7] .Different observational trials in infants with bronchiolitis have shown that HFNC therapy is practical, safe, and reliable, although further studies are needed to ensure evidence-based recommendations for its use. Latest publications show that a wider variety of ages and diagnoses could also be successful and safe to submit.[14]

METHODOLOGY

It was an observational research that took place at the Liaquat University of Medical & Health Sciences (LUMHS) Hospital. In this study, 200 patients with severe respiratory distress, either caused by Covid-19 or other respiratory disorders, were enrolled. LUMHS hospital ICU ward was used as a data source. This study showed that subjects in their late 30s, both male and female. Patients with acute or chronic respiratory failure were included, but those with other pulmonary disorders were excluded. The data analysis was performed on SPSS version 22.0. The variables like efficiency, gender ware categorical variables and their result have been shown in pie charts, the efficiency compression of oxygen delivery was also represented in pie chart, while age is presented in bar chart.

RESULTS

A total of 200 patients were selected for this study. Out of them 122 (61%) were males and 78 (39%) were females. Regarding age. 24%. Were below 30s. 20% patients were in 30s.and 57% belonged to above 30s. Figure-I shows efficiency of HFNC was 65%. In 65% of cases it was proved to be lifesaving and in 35% cases patients were sent for intubation. Figure-II illustrates Oxygen delivery method using cannula was 65% in delivering SPO2 equal to or greater than 10 lpm while face mask method was only 35% successful, which determines that higher concentration cannulation is more efficient method than face mask.

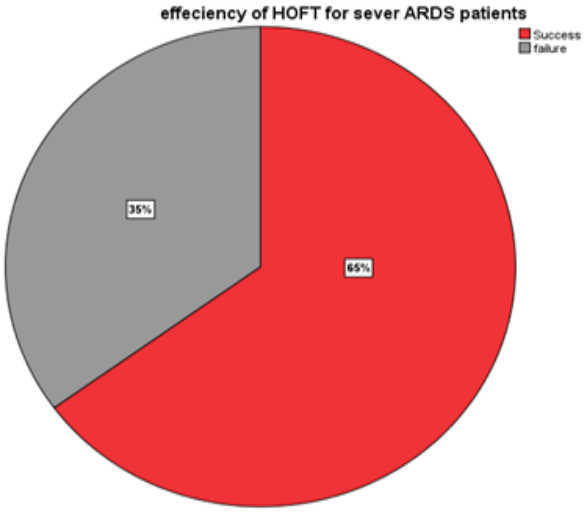

FIGURE I: Efficiency of HOFT for severe ARDS patients

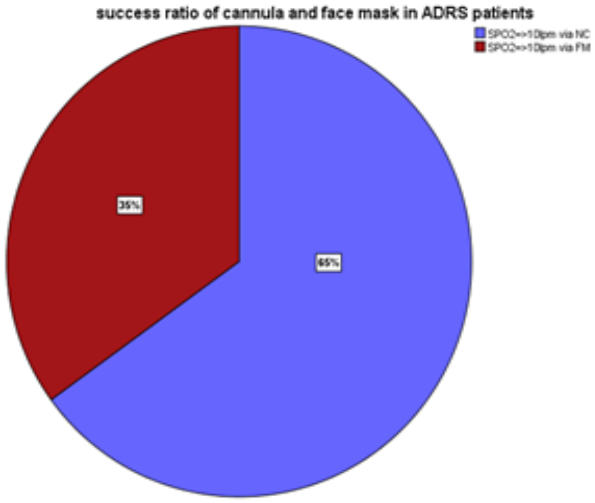

FIGURE II: Success ratio of cannula and face mask in ARDS patients

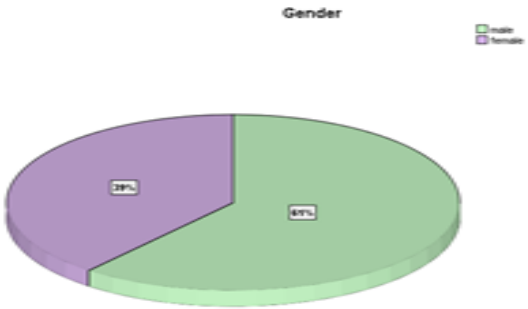

Figure III: Gender

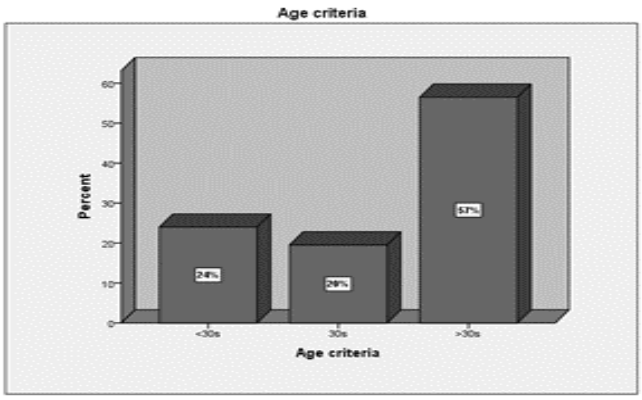

Figure IV: Age Criteria

DISCUSSION

The study was conducted to assess the use of HFOT for ADRS patients by using cannulation instead of facemask. Due to different delivery systems, high flow nasal cannula can provide up to 60 L/min whereas high-velocity nasal insufflation can only supply up to 40 L/min. The open air is where you exhale. HFNO decreases breathing frequency and labor of breathing while reducing dead space and providing low levels of PEEP[15] The is cannulation is more preferred in case of severe hypoxia and for delivery of more oxygen a very reliable option that has been seen is cannulation when we need to send more concentrated oxygen. HFNC, like CPAP, is a high-flow device that can provide positive end expiratory pressure, but unlike CPAP, it lacks a valve. The use of HFNC has been suggested as a strategy to reduce upper airway dead space and resistance. HFNC is thought to be a less invasive treatment than CPAP, as well as being better tolerated by patients and easier to manage by personnel. HFNC has been demonstrated to be more effective than standard therapy (e.g., CPAP) in several trials[16]. Better tolerance, easier mobility, closer bonding between newborn and parents, and less nasal damage of HFNC have lately resulted in widespread usage of this form of NRS in most centers, particularly in preterm newborns[17]. During the COVID-19 pandemic, a large number of clinicians became sick, raising worries about using aerosol-generating methods. As a result, it looks like HFNC is being avoided. The scientific data of bio-aerosol formation and dispersion using HFNC summarized here demonstrates a danger comparable to that of

regular oxygen masks. Thus, using HFNC prongs with a surgical mask over the patient's face might be a feasible approach that might help hypoxemic COVID-19 patients and avoid intubation[18]. Due to the pandemic of new coronavirus illness (COVID-19) in 2019, the global healthcare system is experiencing an unprecedented resource shortage. It is most commonly linked with fever, cough, dyspnea, myalgia, tiredness, and pneumonia. Invasive mechanical ventilation is used by between 29.1% and 89.9% of ICU patients. For the treatment of hypoxemic respiratory failure, supplemental oxygen therapy is the mainstay. In critically unwell patients, the high-flow nasal cannula (HFNC) is a unique non-invasive technique for improved oxygenation and breathing. In this bleak circumstance, HFNC can help reduce mechanical ventilation[19]. In patients with COVID-19, HFNC can lessen the need for intubation, as well as the duration of stay in the intensive care unit and problems associated with mechanical ventilation. HFNC can also help patients with apneic oxygenation during airway control. Aside from that, the use of high-flow oxygen cannulas might result in the formation of aerosols. As a result, HFNC therapy should be done in a negative pressure chamber if feasible; if this is not feasible, devices should be done in a single room[20]. The HFNC is very convincing high flow oxygen therapy, which can be obtained through invasive ventilation, but it is too heavy for the elderly and chronic. patients to endure. With our findings, we were able to discover that HFNC has a high efficiency and has proven to be very effective in ADRS patients. Face mask complications such as discomfort and oxygen leakage were very low in the cannulation oxygen delivery method, and patients were more comfortable. Furthermore, when we consider the age factor and the complications of using oxygen therapy, this device received positive feedback. HFNC has established itself as a well-known oxygen therapy, and more research into this technology is currently underway.

CONCLUSION

HFNC is a recent innovation that reduces the need for intubation and oxygen loss while also providing high-flow oxygen with optimum humidification and temperature to patients with respiratory failure

Conflict of Interest: There is no conflict of interest.
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Research article

COMPARISON OF POST-OPERATIVE REFRACTIVE OUTCOME AFTER PHACOEMULSIFICATION AND EXTRA CAPSULAR CATARACT EXTRACTION

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ABSTRACT

OBJECTIVE: The objectives of the study was to identify the refractive outcome after phacoemulsification and extra capsular cataract extraction and to compare refractive outcomes after both surgeries.

METHODOLOGY: A comparative cross-sectional study was conducted at department of the ophthalmology at Helper Eye Hospital Quetta for 3 months from October 2019 to December 2019. In the study, patients aged 40 to 60 years with both unilateral and bilateral senile cataracts and willing to participate were chosen. All patients were organized into two categories, Group A and Group B, respectively. Group A patients underwent a phacoemulsification surgical procedure (PHACO) and group B patients underwent extra capsular cataract Extraction. Surgeries were conducted by senior and expert surgeons with a minimum of 5 years of experience. The SPSS 23.0 version was used to analyze the results.

RESULTS: Total 174 were enrolled and two separate treatment strategies were used; their mean age was 53.97 + 8.41 Group A years and 55.58 + 5.27 Group B years. Most patients obtained 77.0% of group A visual acuity UCVA (> 6/9) over three weeks, compared to 18.4% of group B, p-value 0.001. In Group A, BCVA (> 6/9) was also measured significantly higher by 88.5% relative to Group B, p-value 0.001. The six-week visual acuity evaluation of UCVA and BCVA (> 6/9) was obtained in almost all Group A cases, relative to Group B, with a p-value of 0.001.

CONCLUSION: Patients those underwent PHACO had shown significant best final visual outcome on day one, three week and six weeks as compared to ECCE.

Key Words: Cataract, Refractive outcome, PHACO, ECCE

INTRODUCTION

Cataract is a chronic disease associated with aging process which is a main cause of reversible blindness worldwide, affecting around 20 million people, of which 95% are over 65 years of age, they have a noticeable opacity of lens.[1]
World Health Organization (WHO) has reported the presence of 285 million visually impaired people worldwide, 80% of whom are preventable. It is assumed that of the 39 million blind in the world, 82% are over 50, and the main causes include cataracts 51%, glaucoma 8% and age-related macular degeneration 5%. Regarding the visual impairments, it appears that 65% are in the age group above 50 years old, and the main causes include uncorrected refractive errors 43%, cataracts 33% and glaucoma 2%.[2]
It is estimated that 90% of the blind live in developing countries, where cataracts appear early and last longer, causing problems in the social and economic progress, this being one of the causes and consequences of poverty.[3]
The presence of cataracts can correlate increasing mortality rate, estimated between 1.25 and 1.5 times, and in this context, the rate of cataract surgery that so far the only curative treatment is surgery, which has proven to be highly

cost-effective. This consists of replacing the opaque lens with an intraocular lens by procedures including conventional extraction techniques and two modern techniques are used including phacoemulsification (PHACO) and extra capsular cataract extraction (ECCE). [4,5]

The most common cataract surgery technique due to it lower cost has been reported to be the extra capsular cataract extraction with implant of a polymethyl methacrylate lens (PMMA) in the posterior chamber through a sclera corneal incision of approximately 6 to 7 mm. The results obtained in visual acuity are comparable to those of the phacoemulsification, after several weeks and during this time the improvement is slow and the visual acuity (VA), and astigmatism is unstable.[6]

Over time, technological improvements have been made that make the surgery of cataract easy and safe.[7] This allows the extraction of the cataract lens through a 3 mm incision using a titanium tip that emits ultrasonic waves to mechanically fragment the lens and then aspirate it. Patients operated with this technique achieve a remarkable improvement in visual acuity a month after having been operated and the number of post-surgical astigmatism is less than that obtained in the extracapsular extraction.[8]

Phacoemulsification and Extra Capsular Cataract Extraction both are very important in regaining the vision, however no study has been done in Baluchistan. This study is of great importance to help in the identification of the outcome which is cost-effective and best management option for cataract surgeries. The objective of the study were to identify the refractive outcome after phacoemulsification and extra capsular cataract extraction and to compare refractive outcomes after PHACO and ECCE

METHODOLOGY

A comparative cross sectional study was conducted at department of the ophthalmology Helper Eye Hospital Quetta for 3 months from 1st October 2019 to 31st December 2019. Total sample size calculated for this study was 174, divided in two groups (n= 87 in each group). Simple random sampling technique was used. The ethical approval was taken from Research ethics committee of Liaquat University of Medical & Health Sciences Jamshoro and also the written permission was obtained from the head department of ophthalmology at Helper Eye Hospital Quetta. Inclusion criteria of the study was all the patients who were aged 40 to 60 years, with both unilateral and bilateral senile cataract, with uneventful cataract surgery. Patients with corneal opacity (were determined by Eye surgeon), complicated cataract and surgery (were defined by Eye surgeon) and patients with lens induced glaucoma were excluded from the study. A written consent obtained from all the subjects and the information collected through structured proforma. All the patients were divided into two groups 'group A' and 'group B'. Patients of group A underwent surgical procedure of phacoemulsification (PHACO) and patients of group B underwent extra capsular cataract extraction. All the surgeries carried out by senior and expert surgeons with minimum experience of 5 years.

All the data entered into SPSS 23.0 version and analyzed by using the same software. The quantitative data like age have been presented in form of mean ± S.D. Simple frequency and percentage computed. For categorical variables, Chi square test applied by taking P- value of ≤0.05 considered significant.

RESULTS

Total 174 were enrolled and underwent two different treatment methods, their mean age was 53.97 ± 8.41 years of group A and 55.58 ± 5.27 years of group B. Mean disease duration was 3.66 ± 2.44 years in group A and 3.49 ± 2.69 years in group B.

Table-I. Pre-operative mean of right eye visual acuity between PHACO and ECCE (n=174)

Variable	Surgical procedure		P-value
	Phacoemulsification	Extra capsular cataract	
Visual acuity right eye	38.12 ± 15.22	44.57 ± 17.35	0.069
Visual acuity left eye	39.66 ± 15.39	46.90 ± 18.16	0.197

Mean visual acuity of right eye was 38.12 ± 15.22 in group A and 44.57 ± 17.35 in group B, while mean visual acuity of left eye in group A was 39.66 ± 15.39 and in group B was 46.90 ± 18.16, findings were statistically insignificant.

Table-II. Day one visual acuity (UCVA and BCVA) comparison between PHACO and ECCE n=174

Visual acuity day one	Surgical procedures		P-value
	PHACO	ECCE	
UCVA			
>6/9	18(20.7%)	00	0.001
6/12-6/18	62(71.2%)	65(74.7%)	
6/24-6/60	7(8.0%)	22(25.13%)	
Total	87(100.0%)	87(100.0%)	
BCVA			
>6/9	26(29.9%)	00	0.001
6/12-6/18	57(65.5%)	54(71.13)	
6/24-6/60	4(4.6%)	33(28.7)	
Total	87(100.0%)	87(100.0%)	

On post-operative day one visual acuity >6/9 (UCVA) was achieved 18 (20.7%) cases of group A and no nay cases found in group B. 6/12-6/18 was achieved by 62(71.2%) patients of group A and 65 (74.7%) patients of group B. Worsen acuity 6/24-6/60 was seen in 22 (25.13%) patients of group B, which statically significant as compared to group A, p-value 0.001. Similarly day visual acuity BCVA (>6/9) achieved by 26(29.9%) patients of group A, which was statistically significant, p-value 0.001.

Table-III. Three weeks visual acuity (UCVA and BCVA) comparison between PHACO and ECCE n=174

Visual acuity Three weeks	Surgical procedures		p-value
	PHACO	ECCE	
UCVA			
>6/9	67(77.0%)	18(18.4%)	0.001
6/12-6/18	20(23. %)	67(79.3%)	
6/24-6/60	00	2(2.3%)	
Total	87(100.0%)	87(100.0%)	
BCVA			
>6/9	77(88.5%)	67(77.0%)	0.001
6/12-6/18	10(11.5%)	19(21.9)	
6/24-6/60	00	1(1.1)	
Total	87(100.0%)	87(100.0%)	

On three weeks assessment visual acuity UCVA (>6/9) was achieved by most of the patients 67(77.0%) of group A as compared to group B 18(18.4%), p-value 0.001. Visual acuity BCVA (>6/9) was also assessed significantly more in Group A 77(88.5%) as compared to group B, p-value 0.001.

On six weeks assessment visual acuity UCVA and BCVA (>6/9) were achieved by almost all cases of group A as compared to group B, p-value 0.001.

Table-IV. Six weeks visual acuity (UCVA and BCVA) comparison between PHACO and ECCE n=174

Visual acuity Six weeks	Surgical procedures		p-value
	PHACO	ECCE	
UCVA			
>6/9	86(98.9%)	58(66.6%)	

6/12-6/18	1(1.1%)	29(33.4%)	0.001
6/24-6/60	00	00	
Total	87(100.0%)	87(100.0%)	
BCVA			0.001
>6/9	77(88.5%)	74(85.0%)	
6/12-6/18	10(11.5%)	12(15.0)	
6/24-6/60	00	1(00)	
Total	87(100.0%)	87(100.0%)	

DISCUSSION

The study showed mean age of the participant was 53.97±8.41 years of group A and 55.58 ± 5.27 years of group B. In this study most of the cases were illiterate and having low socioeconomic status. These findings were similar to the others studies as; associations have been documented between higher prevalence of blindness (regardless of cause) and being female, living in a rural area, having low socioeconomic status, being less educated and belonging to an ethnic minority.[51] Cabrera *et al*[9] recently conducted a study in Mexico to determine socio-economic factors associated with cataract patients; more than half the patients had not been educated beyond the primary level, while half the patients enrolled in primary ophthalmological care an year after the onset of symptoms.

According to the gender distribution males were found in majority in both groups as 54.0% in group A and 51.7% in group B, while 46.0% were females in group A and 48.3% in group B, with insignificant difference p-value 0.761. Most of the cases were illiterate in both groups as 66.7% in group A and 72.4% in group B. On other hand Thevi T et al[10] reported that most patients (38%) were in 61–70 years of age group. In this study males were found in majority in both groups as 47(54.0%) in Phacoemulsification group A and 45(51.7%) in group B, while 40(46.0%) were females in group A and 42(48.3%) in extra capsular cataract extraction (ECCE) group B. while a study conducted by Naik et al[11], In group I, the mean age was 59.2±9.8 years (range=44-87years), while in group II it was 59.5±11.1 years (range=41-80 years). In both categories, the age distribution was comparable. There were 34 males and 21 females in Category I. There were 28 males and 27 females in Group II. In another study of Oderinlo O et al[12] stated that 50.4% were females and 49.6% were males, with a mean age of 65.3 ± 11.10 years. Kara-Junior N et al[13] also found comparable findings regarding age and gender as mean age of patients in both groups were 69 ± 9 years (ECCE-group) and 68 ± 9 years (PHACO-group), (p = 0.70), where (in PHACO-group) 35.3% and (in ECCE-group) 44.1% of the patients were males.

In this study on six weeks assessment visual acuity UCVA and BCVA (>6/9) were achieved by almost all cases of Phacoemulsification treated group as compared to those underwent extra capsular cataract extraction (ECCE), p-value 0.001. And on six weeks assessment visual acuity UCVA and BCVA (>6/9) were achieved by almost all cases of group A as compared to group B, p-value 0.001. Similarly in the study of Thevi T et al[10] reported that in the setting of a District Hospital, PHACO showed to have a superior final visual outcomes than ECCE. It was similar to NED findings (2002-2011), in which 91.5 percent of cases undergoing PHACO had a better vision (6/12) than those 83 % cases undergoing Extra Capsular Cataract Extrection.[14] This supports the findings of Nepalese study, in which 91.7% of cases in PHACO-group showed better visual outcomes than ECCE-group.[15] Study performed by Baig et al[16] reported contrary results, in the MSICS community, the induced astigmatism was lower relative to the ECCE group at the first day, but no substantial difference was observed after six weeks. After three weeks, corneas were clear in both groups. At 6 months of follow-up, 22 (12.5 percent) group 1 patients and 27 (14.6 percent) group 11 patients had Elschnigs Pearls.

In randomized trials from two Eye Hospitals (Oxford and Moor fields), the ratios of patients attaining vision correction of 6/9 or more were significantly greater in the PHACO-group (69%) than those in ECCE-group (57%).[17] Khan et al,[18] also reported better visual outcomes in PHACO-group (80%) than ECCE-group (54%). Similar findings were also reported by Arriaga ME and Lozano J[19] (76% cases in PHACO-group and 66% cases in ECCE-group). An observational, multicenter study of Loo et al,[20] conducted in three ophthalmology departments in Malaysian hospitals (Health Ministry) reported that 3 months before surgical procedure, corrected vision acuity outcome was better in PHACO-group (94%) than ECCE-group (81%). While inconsistently Quinlan M. et al[21] reported no significant difference between phacoemulsification and ECCE procedure on the nature and rate of in-vitro cell

growth on posterior capsule. Dowler JG et al[22] concluded that PHACO is superior than ECCE in terms of postoperative vision acuity with less postoperative inflammatory response, and with reduced risk of capsulotomy surgical procedure. Toyama T et al[23] reported that PHACO is safe and effective in enhancing vision acuity equally among both the younger patients and the patients with age range ≥90 years, at least if accomplished by skilled surgeons. Ahmed AM et al[24] reported that Phacotrabeculectomy provides early recovery of vision more sustained and effective IOP control than extra capsular cataract extraction trabeculectomy. PHACO has become a common procedure in cataract extraction within the developed countries, where rehabilitation of the patient is very fast, associated with good visual outcomes. PHACO enables the quicker and more likely wound healing, less uncomfortable for the patient, fewer wound-associated complications, and lesser changes of postoperative astigmatism than conventional ECCE.[48] PHACO also enables to achieve superior quantitative and qualitative IOP control in terms of duration and range of IOP control than extra capsular cataract extraction trabeculectomy yet following 12 months of surgical procedure.[47] Kalpadakis P et al[25] observed that endophthalmitis develops significantly later among extra capsular cataract extraction cases than phaco cases. Therefore hygiene conditions among extra capsular cataract extraction operated patients have a greater impact. PHACO is proposed to be better than extra capsular cataract extraction in reducing the risk of endophthalmitis following cataract extraction among subjected living in under standard conditions. Kara-Junior N et al[13] also reported that PHACO is effective an cost-effective intervention because of its impact on Brazilian public healthcare system, since it improve the quality of life. The international community normally does not promote the usage of PHACO procedure with foldable IOL implant in underdeveloped nations ' public healthcare structures, given the general agreement throughout the literature regarding its clinical advantages and diminished individual costs.[50]

CONCLUSION

In the District Hospital setting, PHACO has been shown to have a better final visual outcome compared with ECCE. Yet ECCE also delivers good results. The ECCE preparation does not take long and can be performed by virtually all ophthalmologists. It can be achieved with the required instruments in a working operation theatre, which do not cost much. Because of better outcomes with PHACO, however, we suggest that district hospitals be supplied with the PHACO system, instruments and appropriate facilities for intraocular surgery, and that doctors and paramedics be qualified so that improved eye care services can be offered to the general public.

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Risk of mental illness in doctors – A COVID 19 perspective

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Suicide claims nearly 800,000 lives every year globally in particular among 15-29 Years age group. Mortality of disease such as heart diseases, stroke and cancer have declined over the past 100years but suicide rate has remain unchanged. Mental illness is the cause of suicide resulting from inequalities, racism and poverty in certain circumstances can be appropriately termed as "fearful- demoralized", further away from their work related goals.

Recent statement on racism and mental health stated by the President Royal College of Psychiatrist suggests traumatic interaction that can result in poorer self-esteem , internalized hatred , reflecting how adversity undermine resilience and ability to protest and Protect. This warns the need to practice psyche- social education .It is virtually impossible to dispense social prescribing, unless we understand our local communities' inequalities by public engagement. There is need to include religion and mental health into psychiatric care.

Measures of religious coping can be both positive and negative, provided how individual deploy good religious practice and other aspects of religious experiences. There is a gap in management protocols when religion is not involved, it is rarely Part of Standard psychiatric assessment and treatment. Protocol for assessments ignore religious belief & there are few, intervention to take account of Religious & Spiritual beliefs. Coronavirus -19 pandemic has changed every health professional Practices including psychiatry. The virus leaves a trail of delirium, depression, and Anxiety. Perhaps post traumatic disorder in those who survive. The corona Virus -19 pandemic , research shows placed additional crises on doctors and greater Psychological distress elevated suicidal ideation, Thus following pandemic there could be a major crises of mental illness arise. It is also feared that the greater proportion of the medical and allied community might suffer.

Doctors Suicide rates 2 to 5 times higher than General population. But it is important to remember that the vast majority of doctors do not kill themselves .Most doctors thrive in their working Environment but post-COVID period might not be the same. As doctors work harder , they blame themselves for Not being able to deliver the care required by the patients and felt guilty for events beyond their control and can suffer from a" Triad of Guilt, low self-esteem and persistent. Sense of failure might prevail more than ever and suspected that the most doctors suffering post-COVID depression might take their own life.

In UK, around 1in 5 adult has considered suicide, and 1 in 15 have attempted it. The thought of suicide is higher in Doctors compared with The General population. 60% of doctors observed to be reluctant to seek help, because of concern that it could affect their Medical license. Sadly doctors shows the high rate of Mental Health discrete and lower access to treatment. With inequalities, co-morbidities, aging process and long COVID illness at smirk , calls for need to improve response to mental health impact.

As a psychiatrist with over 60 year's experience, in my opinion in such situation upcoming major mental health issue more modern approach where religion and standard psychiatric care may be combined. The new evidence based medicine might take a little more time for trial and testing but it is worth considering.

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