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Highlights

- Acute Myocardial Infarction
- Palliative Surgical Technique
- Pulmonary Venous Connection
- Systemic Inflammatory Response

Discovering Thoughts, Inventing Future

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Predictors of Systemic Inflammatory Response Syndrome Following Percutaneous Nephrolithotomy

By Durga Prasad, Rahul Devraj, Kiran Golimi, Rahul Nair, S. Vidyasagar & Ch. Ram Reddy

Abstract- *Introduction and Objectives:* Sepsis remains one of the dreaded complications of percutaneous nephrolithotomy (PCNL). To analyze prospectively the preoperative and intraoperative factors that predict the occurrence of systemic inflammatory response syndrome (SIRS) in patients undergoing PCNL so that we can aggressively manage those patients from the preoperative period itself and avert the dangerous complications.

Materials and Methods: A prospective study was carried out between Septembser 2016 and April 2018 including all patients who underwent PCNL. Patients with infected collecting system, synchronous ureteric stones, stents, or percutaneous nephrostomy drainage were excluded from the study. Patients were evaluated with physical examination, urine analysis, urine culture and sensitivity, complete blood count, renal function test, X-ray kidney, ureter, and bladder (KUB), and plain and contrast-enhanced computerized tomography KUB. Patients who developed any two or above of the following in the postoperative period were considered to have developed SIRS.

Keywords: *percutaneous nephrolithotomy, post PCNL complications, systemic inflammatory response syndrome.*

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Predictors of Systemic Inflammatory Response Syndrome Following Percutaneous Nephrolithotomy

Durga Prasad [α], Rahul Devraj [σ], Kiran Golimi [ρ], Rahul Nair [ω], S. Vidyasagar [¥] & Ch. Ram Reddy [§]

Abstract- ***Introduction and Objectives:*** Sepsis remains one of the dreaded complications of percutaneous nephrolithotomy (PCNL). To analyze prospectively the preoperative and intraoperative factors that predict the occurrence of systemic inflammatory response syndrome (SIRS) in patients undergoing PCNL so that we can aggressively manage those patients from the preoperative period itself and avert the dangerous complications.

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Results: Of the 250 patients who underwent PCNL 51 (20.4%) developed features of SIRS. On univariate analysis, gender, diabetes mellitus, bladder urine culture, and serum creatinine were found to be statistically insignificant. Blood transfusion (P=0.009), no of access tracts (P<0.001), no of calculi (P<0.01), pre op pyelocalyectasis (P<0.001), no of tracts (P<0.001), stone size (P=0.001), age (P=0.019), and operative time (P<0.001) were found to be statistically significant. On multivariate regression analysis stone size, no of access tracts, operative time, and stone culture were found to be statistically significant with regard to the occurrence of SIRS.

Conclusion: Patients with above-identified risk factors must be aggressively treated to prevent the occurrence of sepsis postoperatively.

Keywords: percutaneous nephrolithotomy, post PCNL complications, systemic inflammatory response syndrome.

I. Introduction

Percutaneous nephrolithotomy (PCNL) is considered the standard of care in the management of renal calculous disease. In the early days, the procedure had considerable morbidity and at times mortality.

With advances in technology and improved surgical technique, the mortality is very low and morbidity has come down. Sepsis remains one of the dreaded complications of the procedure. We need factors to predict who all are more likely to develop sepsis so that we can aggressively manage those patients from the preoperative period itself and avert the dangerous complications from occurring.

In this endeavor, analysis of both preoperative and intraoperative factors is essential to identify the risk factors since both can play a role in the development of sepsis. [1, 7]

a) Aim and objective

To analyze prospectively the preoperative and intraoperative factors that predict the occurrence of systemic inflammatory response syndrome (SIRS) in patients undergoing PCNL for renal calculus disease.

II. Materials and Methods

A. *Period of study:* September 2016 to April 2018.

B. *Study design:* Prospective study.

C. *Ethical clearance:* The Institutional Ethics Committee of approved the study.

D. *Inclusion criteria:* All patients with renal stone disease who underwent PCNL in our institution.

E. *Exclusion criteria:*

- Patients with infected collecting system.
- Patients with synchronous ureteric stones.
- Patients with stents or percutaneous nephrostomy drainage.

a) Method of study

All patients who presented to our department with renal stone disease were evaluated with physical examination, urine analysis, urine culture and sensitivity, complete blood count, renal function test, X-ray KUB, and plain and contrast-enhanced computerized tomography.

All patients were subjected to percutaneous nephrolithotomy after obtaining anesthetic fitness.

All patients were administered 1 g of ceftriaxone and 500 mg of amikacin as a standard antibiotic

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prophylaxis for a period of 3 days including one preoperative dose. Patients with preoperative serum creatinine <1.4 were not administered amikacin.

All patients underwent PCNL under general anesthesia. Patients were placed in lithotomy position, and a 5 Fr ureteric catheter was introduced. Contrast was used to identify the collecting system and to select the calyx for puncture. After prone positioning with adequate padding, the posterior calyceal puncture was done under fluoroscopic guidance. The level of puncture was decided as per the location of stone to ensure complete clearance.

Puncture was done using 18 G three part needle, and a guide wire was placed within the system. Guide rod was introduced and serial coaxial dilatation of tract was done with co-axial metal dilators. Access sheath was placed. Using 26 Fr nephroscope and pneumatic lithotriptor stone fragmentation was done.

After fragments were evacuated, antegrade 4 Fr ureteric stent is placed. A 20 Fr nephrostomy tube is also placed.

Intraoperative parameters such as operative time, no of access tracts used, and need for blood transfusion were recorded. Pelvic urine collected on puncture and stone were sent for culture and sensitivity.

Patients were followed up in postoperative period with daily complete blood count including white blood cell (WBC) count, serial pulse rate, temperature, and respiratory rate monitoring.

Postprocedure check X-ray KUB was taken before removing the nephrostomy tube in the 1st postoperative day. Ureteric stent was removed after 14 days.

Patients who developed any two or above of the following in the postoperative period were considered to have developed SIRS.

1. Temperature >100.4°F (38°C) or <96.8°F (36°C).
2. Pulse rate >90/min.
3. Respiratory rate >20/min.
4. WBC count >12,000/ml or <4000/ml.

b) Statistical analysis of the study

For discrete data, proportion is computed, and the mean and standard deviation are computed for the continuous data. The Chi-square test was applied to compare the proportions between the groups. To examine the association between the outcome (SIRS) and several variables, logistic regression analysis was done. All analyses were two-tailed, and $P < 0.05$ was considered statistically significant.

III. Observation and Results

a) Descriptive statistics

A total of 250 patients underwent PCNL in our institute during the study period. All the patients were evaluated both preoperatively and postoperatively as described above. Of these 250 patients, 51 (20.4%) of them developed features of SIRS in the postoperative period.

The patient characteristics are as shown in Tables 1, 2 and Figure 1.

Univariate analysis showed a significant association between age of the patient, blood transfusion, stone size, number of access tracts, operative time, pelvic urine culture [2] showing growth, and stone culture showing growth as predictors of SIRS [Table 3].

On multivariate regression analysis, stone size, no of access tracts, operative time, and stone culture were found to be statistically significant [Table 4] with regard to the occurrence of SIRS.

Table 1: Basic characteristics of study population

	Age (years)	Serum creatinine (mg/ml)	Stone size (cm)	Operative time (min)	Number of tracts
Mean	42.18	1.196	2.893	70.32	1.10
Minimum	18	0.6	2.2	40	1
Maximum	65	3.4	5.1	125	2

Table 2: Gender Distribution

Sex	No SIRS	SIRS	Total
Male	121	27	148
Female	78	24	102
Total	91	29	250

SIRS: Systemic inflammatory response syndrome

Table 3: Parameters independently associated with systemic inflammatory response syndrome on univariable analysis

Parameter	P	Statistical significance
Gender	0.829	Not significant
Diabetes mellitus	0.062	Not significant
BloodurineC/S	0.200	Not significant
Bloodtransfusion	0.009	significant
Number ofaccesstracts	0.001	significant
Pelvicurineculture	0.3	Not significant
Stoneculture	0.4	Not significant
Serumcreatinine	0.340	Not significant
Stone size	0.004	significant
Pre op pyelocaliectasis	0.005	significant
Operative time	0.829	significant

SIRS: Systemic inflammatory response syndrome, C/S: Culture and sensitivity

Table 4: Multivariate logistic regression analysis

	B	SE	Wald	df	Significant	Exp (B)	95.0% CI for Exp (B)	
							Lower	Upper
Diabetes mellitus	0.481	0.598	0.647	1	0.421	1.618	0.501	5.229
Bladder urine C/S	0.364	0.531	0.469	1	0.493	1.439	0.508	4.077
Blood transfusion	1.368	0.764	3.202	1	0.074	3.927	0.878	17.564
Pelvic urine C/S	−0.086	0.561	0.024	1	0.878	0.917	0.305	2.756
Stone C/S	−0.958	0.658	2.120	1	0.345	0.384	0.106	1.393
Serum creatinine	0.385	0.756	0.259	1	0.611	1.470	0.334	6.471
Age distribution	0.842	0.604	1.944	1	0.163	2.321	0.711	7.582
Stone size	1.498	0.509	8.672	1	0.003	4.473	1.650	12.124
Operative time	1.268	0.542	5.475	1	0.019	3.552	1.228	10.271
Number of tracts	3.238	0.650	24.828	1	0.000	0.039	1.332	11.112

SE: Standard error, C/S: Culture and sensitivity, CI: Confidence interval

IV. Discussion

Renal stone disease is a common urological problem. Medical management may not be possible in all situations. In certain situations like increasing stone burden or in specific type of stones like infective stones, surgical management is warranted. Moreover, medical management is more useful to prevent recurrences following surgical removal rather than as primary therapy.

Surgical management as described includes both open and endourological procedures. In the modern era of minimally invasive surgery, renal calculous surgery is no exception.

The procedure of PCNL has gained widespread acceptance and is the standard of care to treat renal calculous disease.

The procedure when attempted initially was time-consuming, tedious for both patient and treating surgeon, and with considerable morbidity and some mortality.

With advances in imaging, optics, and improved understanding of the pathology behind the considerable morbidity, the procedure has been standardized.

Initially obtaining an access was considered a vital step in the success of the procedure.

With good preoperative imaging particularly reconstructed computerized tomography, it paved the way for better localization and defining the extent of calculi. Moreover, better delineation of pelvicalyceal anatomy has helped us in obtaining an access to the pelvicalyceal system with ease.

Further understanding of the way of obtaining an access with both fluoroscopic and ultrasonographic guidance has helped us in successfully creating a tract into the pelvicalyceal system.

Even though both antegrade and retrograde techniques of access are available, the most commonly practiced access is through the antegrade access.

Developments in creating a tract sufficient for the procedure have also lend a helping hand in the success of the procedure. Various methods of tract dilatation such as coaxial Alken dilators, Amplatz

semi-rigid dilators, and balloon dilators have helped in establishing a successful tract.

Advances in optics and miniaturization of endo instruments have also reduced the morbidity and improved the success rate. Introduction of flexible instruments has also greatly improved access to all the parts of collecting system without a need for additional tracts.

Advances in intracorporeal lithotripters have also improved the success rate of PCNL. Smaller size lithotripter probes and efficient retrieval of stone fragments have improved the outcome of the procedure.

In spite of all the advances and resultant improvements, certain morbidities of the procedure continue to affect the patients. Even though the procedure is being done under standard antibiotic prophylaxis, still patients develop a postoperative fever.[4-6]

The procedure is usually done after sterilizing the urine in patients with preoperative urine culture showing growth. Still 15–30% of patients develop postoperative SIRS of which 1–2% of patients develop sepsis. The likelihood of patients developing sepsis cannot be predicted as of now.

However, the likelihood of developing SIRS in patients undergoing PCNL can be determined by identifying certain preoperative and intraoperative factors associated with the patients.

Our study comprising of 250 patients who underwent PCNL showed that 51 (20.4%) of them developed SIRS postoperatively. A study by Korets et al. [3] showed SIRS incidence of 9.8%. Another study by Chen et al. [9] showed SIRS incidence of 23.4%.

On analysis of data collected before, during, and after surgery, it showed certain factors associated significantly in developing SIRS.

Univariate analysis showed a significant association between age of the patient (>42 years), need for blood transfusion, stone size (>2.893 cm), number of access tracts (1 or >1), operative time (>70 min), pelvic urine culture showing growth, and stone culture [8] showing growth.

With regard to gender distribution, diabetes mellitus, bladder urine culture showing growth, and raised serum creatinine, the association was found to be statistically insignificant.

On multivariate analysis, only stone size, number of access tracts, operative time, and stone culture were found to be statistically significant in predicting the occurrence of SIRS postoperatively.

V. Conclusion

In patients undergoing PCNL, the following factors were found on analysis to be significantly associated with developing SIRS and thereby helping to identify those likely to develop sepsis.

- Univariate analysis showed a significant association between, blood transfusion, stone size, number of access tracts, operative time.
- Multivariate analysis showed stone size, number of access tracts, operative time, and stone culture as statistically significant in predicting the occurrence of SIRS postoperatively.

In this study, no statistically significant association was found between gender, diabetes mellitus, bladder urine culture, and stone culture and pelvic urine culture raised serum creatinine in developing SIRS postoperatively.

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Conflicts of interest
There are no conflicts of interest.

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Reduction of Cost of Cancer Treatment through Government Non Government Interface

By Dr. Digpal Dharkar MS

Abstract- Treatment of cancer is not only expensive but is a long term proposition. Affordable cost of treatment remains a challenge in India, and perhaps other developing countries, in spite of rapid socio-economic development.

The Indian Institute of Head & Neck Oncology, a charitable cancer institute, decided on three pronged approach reaching out to far off places in India and develop a low cost charitable treatment facility. Our activities over last 30 years were facilitated by support from national and international agencies/organisations. Grants from World Health Organisation on 7 occasions, Australian Agency for International Development on three occasions, Government of India on three occasions, the government of Japan, the Oxford international centre for palliative care and more than a dozen organizations and agencies helped us to successfully make a:

(1) Sustained effort to detect cancers early.

(2) Train health care workers on early detection.

(3) Get equip mental support.

(4) Develop a charitable cancer facility and thereby offer low cost treatment.

Keywords: *cancer cost reduction, charity treatment, grants and donations.*

GJMR-I Classification: *NLMC Code: QZ 20.5*

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(1) Sustained effort to detect cancers early.
(2) Train health care workers on early detection.
(3) Get equip mental support.
(4) Develop a charitable cancer facility and thereby offer low cost treatment.
(5) This experience enabled the task of cost reduction through government, non-government agencies' interface; which can perhaps be replicated in other developing countries.

Keywords: cancer cost reduction, charity treatment, grants and donations.

I. Introduction

GLobal figures point out to a rising number of patients of cancer and India is no exception. A Planning Commission report estimates that about 2.8 million people have cancer at any point of time and half a million die of the disease each year, high death rates clearly indicating late stage diagnosis[1]. The number of cases is expected to go up because of an increase in life expectancy, the incidence is projected to Rise five-fold by 2025 and the prevalence is likely to increase to 19% in men and 23% in women by 2020.[2]

According to Globocan 2012, an international cancer research project, one in five cancer insurance claims is by those between 36 and 45 years of age[3]. This means that the disease is set to disrupt the family's finances due to the loss of a source of income.

Disparities in income, shortage of low cost cancer facilities and late diagnosis compound this problem.

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II. Background

Cancer Care is not easy or cheap anywhere in the world but one of the biggest challenges for patients in India is meeting the varied costs of Cancer treatment. The main reasons for this are:

(1) Cancers are detected late needing prolonged treatment, oftentimes multidisciplinary such as radiation or cyclical chemotherapy.
(2) Most of the cancer treatment facilities are located in urban areas with a cultural disconnect between village folk, urban areas are well penetrated but vast rural areas remain untouched.

The present availability of teletherapy machine in India is only about 0.3 per one million population, whereas, in USA and UK, the availability is 8.2 and 3.4 per million respectively. Considering the fact that, in a developing country, the requirement of teletherapy machine is 1 machine per million population, India should have at least 1000 operating machines[4], there are only about 430 teletherapy machines operating in the country[5] thus making affordable cancer treatment accessible to village folk which comprises of 80% of Indian population an issue. On one hand is the financial implication and on the other, the distances needed to travel for going through prolonged treatment, often necessitated by late diagnosis. Then there is the concern about the rising Cancers cases.

(3) The number of patients is expected to go up further also because of increase in life expectancy.
(4) The staggeringly high cost of equipment required for setting up a cancer hospital is largely due to the fact that equipments, generally imported, are costly; hospitals have to pay a fortune for imported equipment.

Aware of the fact that the facilities of treatment were rather sparse, we began our efforts by first setting up an organization fulfilling the statutory norms for establishing a Cancer center.

The focus was on India's commonest Cancer in men, a center for the head and neck Cancers, now known as the Institute of Head and Neck Oncology.

The Indore Cancer Foundation, a public charitable trust, has worked in state of Madhya Pradesh focusing on district based early cancer detection, training of health personnel, as well as development

of a charitable cancer center focusing on India's commonest cancer in men.

In Indore our legal status is of a Public Charitable Trust. Our objectives include health education, early detection and the setting up of a fully equipped Indian Institute of Head and Neck Oncology; as a flag ship project of the parent organization the Indore Cancer Foundation Charitable Trust.

III. District Hospitals; A Key Component for Health Care Delivery

For Cancers, the health care delivery system in India follows two bifurcated pathways, commercial corporate model and the public health system. While the private, commercial hospitals run on their own steam, public hospitals have a structured system and despite monumental constraints cope not only Cancer but with multiple diseases; communicable as well as non-communicable diseases and this they accomplish with commendable tenacity.

One of the key components of the public health systems are the Primary Health Centres which are scattered far and wide, totaling 28,863 in number 6. An alarming number are in dismal conditions, severely understaffed and equipped. These are the first point of patient entry, the referral then follows a structured system to the District Hospitals, which are the real hub of activities. The last census exercise in 2011, carved out India into 64 districts 7. The health centres are within this network.

Most patients of suspected Cancer, first report to the district hospitals and then reach the nearest (7) government controlled Cancer Institutions situated mainly in the Medical Colleges. They are often referred to 'higher Centres' the regional or tertiary Cancer Centres.

Based on the generally accepted and proven perception that Cancers were detected late we focused on efforts to ensure that they are detected early, even in the rural areas. We did this by reaching out to the districts through various innovative ways.

We used the established network of government health delivery training the local doctors on early Cancer detection.

Our team of doctors examined the possibly suspect cases in these camps. It helped save patients cost. The patients did not have to travel to larger cities or towns for the first specialist's check-up, or 'queue' to see a consultant or pay for services. The push for this detection through the outreach program came from Australian High Commission, which provide a significant financial backing for it.

Reaching out to the small town folk was challenging. Many villagers had misconceptions that cancer is a death sentence. Our focus was therefore identifying high risk groups i.e. those with suspected pre-cancerous lesions such as leucoplakia, or sub mucous fibrosis but also spreading education against the usage of tobacco. During the process of carrying out our detection camps, we honed our communication skills, and acquired a deeper insight into their psyche. Soon our credibility rose, our network grew wider and we were accepted into the grass root system.

While outreach activities gathered momentum, funds helped us to achieve multiple targets. Grants from the World Health Organisation facilitated the training of the Primary Health Workers on ways of self-examination to identify precancerous conditions. Door to door survey found prevalence of tobacco usage in 69,000 people brought to fore the use of tobacco in a high number of school children thus reinforcing the fact that tobacco outlets should be kept away from schools.

IV. Challenges We Faced

Our aim was not just holding detection camps or targeting primary health workers, it was to empower the local doctors to detect Cancer early, most of whom were in the government health system. We reached out to them through the government controlled district administration; getting them to organise CMEs on early detection of Cancer, with a structured program that also included a component of pre and post training evaluations. Organising such programs helped us acquire first-hand knowledge of the gaps in the system in contemporary knowledge that needed to be bridged. Over the years in the Madhya Pradesh, in central India, we have undertaken more than 200 training programs in 11 districts.8 We have thereby trained doctors, nurses and paramedical staff through free CME courses. Training was provided on what would be the warning signs of Cancer and then to those who had the requisite qualification, on how to perform simple examinations like fine-needle aspiration, cytology, pap tests etc.

Credible efforts paid dividends. More work came our way. As efforts gathered momentum, we focused on palliative care training for nurses teaching them the methodology of basic and essential aspects of nursing palliative care home care of terminal cancer patients in their own environment. We honed their communication skills, a vital need when dealing with the patients' families. One of the WHO grants enabled us to train doctors in district hospitals not just in our own state but in Rajasthan and Chhattisgarh as well. The Australian agency for International Development provided a palliative care van equipped with a mini laboratory for on the spot evaluating patients suffering from terminal cancers and providing them with practical and feasible care in their own precincts.

The above programmes have gone a long way in reducing the efforts and cost liabilities of cancer patients and their families. Going to the patient has

proved to be the strategy that worked in alleviating at least some of our patients worries.

In the third decade of our work, a philanthropic organization supported us by partly funding for the development of an in-house Palliative Care Centre at the Indian Institute of Head and Neck Oncology, through running of a palliative centre in a charitable centre has challenges.

V. Surgical Work as a Cost Reduction Approach

On many occasions the cancer detection camps were converted into surgical camps. Some District Hospitals had operating facilities where surgical work for cancer was possible. Prior to these surgeries, all the pre-operative tests as per conventional checklists were followed. We began with simpler risk free minor surgeries. Surgical staff in the district hospitals, trained and adapt in operative as well as pre-operative work were identified and included. This inclusion helped in our capacity enhancement as well as increased their capacities and exposure to such surgeries, enabling them to possibilities of performing these procedures on their own in future. Our team included the surgical and its support staff. The local staffs were given special instructions on the care of the patients. Besides we ensured that our team stayed overnight in the District hospital to take care of any post-operative surgical or medical complications if any.

This strategy made sure that not only was cancer caught fairly early in many cases, but primary surgery and care was available at the nearest hospital for patients. Many of these patients would have hesitated too long before visiting a big city hospital, letting the cancer reach advanced stages, escalating remedial efforts and accompanying costs.

Here too, going to the patient has proved to be the strategy that worked.

Between 2000 and 2017 we have performed more than 3048 free cancer surgeries. We held more than 214 free Cancer Camps in Madhya Pradesh, Chhattisgarh, Maharashtra, Gujarat, Rajasthan & Uttar Pradesh, examined more than 2,50,000 people in high risk groups, organised more than 220 Cancer Awareness Programmes held more than 200 Training Programmes on early detection and palliative care for medical personnel especially for doctors, nurses and paramedical staff of the Government health delivery system, the extensive and only health services within the reach of the economically weak and distressed in the remote areas of the country.[9]

The various camps and training programmes are our long term strategy for reaching to these areas not only for care and treatment but also for reducing the economic burden that cancer imposes on it host with the hope that in due course the numbers of well-trained doctors and their support staff will reach its optimum level, at least in poorer states.

In addition to the support from the state Government, Australia and W.H.O., have enabled us to reach out to all the tiers of the District Health Care system, its Doctors, the Nursing Staff and the Primary Health workers.

VI. Beginning of Charitable Institute

Detecting cancers early was not enough, we needed to have a treatment facility. We decided to develop the Institute for head and neck cancer. The only teletherapy machine in our city, with an estimated population then of ten lakhs, was non-functional and the closest Radiation facility was then an overnight train journey away, at Padhar in Madhya Pradesh.

The development of any cancer Institute required several components. A plan of action, land, equipments and 'seed capital. We had none of this to begin with.

While reaching out to people detecting cancers early as well as training in palliative care were ongoing we were committed to our core objective which was to make the cost of treating cancers affordable and the facilities accessible, Government of the Madhya Pradesh allotted ten acres of prime land on a 99 years of negligible lease rent. This was the kick start of a powerful government-support. It kick-started our Institutional process.

As though providentially, side by side we received as gift wrapped, a teletherapy unit from the Nargis Dutt Memorial Foundation, Ottawa, Canada. Armed with two key components, we began radiotherapy treatment. The gifted Cobalt unit treated patients for years, treating free patients as well as partial charity through cross subsidy. The total number of beneficiaries was 1344, our updated figures shows that till October 2017, radiotherapy was offered to 6031 patients of which 1396 were given total charity treatment by radiotherapy alone and partial charity was offered to 2050 patients.[10]

The teletherapy unit, received from Canada needed to be replaced. We came to know that the country's atomic energy commission had taken up the development of indigenous teletherapy unit and the indigenous machine had state-of-the-art features in safety, controls and user interface a fully closable collimator for improved radiation safety was a unique feature of the machine.

Our quest for procuring the indigenous teletherapy unit was achieved with the help of government of India.

VII. Conclusion

It is possible to get support for charitable anticancer activities though sustained support is an

issue. In our thirty years of working, we succeeded in reaching out, developing a partnership with government health care systems and use their resources, reducing cost thereby.

We were supported for cancer detection, for palliative care on a project to project basis for various programmes.

The Indian Institute of Head & Neck Oncologytoday, set up in ten acres of land received at Rupees 1 lease from the State government, has nearly all the equipments received as grants in aid, a testimony to the fact that resolute action aimed at cost reduction gets supported. Credible work gets help, there are llenges though. While capital expenses are often met, operational costs need to be generated, thus making the fight against cancer and reducing its costs, relentless and needs to be addressed by policy makers in India.

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Effectiveness of Training Programme on Knowledge and Skill Regarding Basic Life Support among Youth

By Mrs. Athira Radhakrishnan & Dr. Sr. Lucy Clare

Abstract- The present study investigated the effectiveness of training programme on knowledge and skill regarding Basic Life Support among youth. The study was conducted among youth studying in selected college of Kottayam district. The research design selected for this study was pre experimental one group pre test post test design. The tools used were socio demographic data sheet, structured questionnaire to assess the knowledge of youth regarding Basic Life Support and observational checklist to assess the skill. Basic information was collected using socio demographic data sheet and knowledge was assessed by a questionnaire followed by a skill assessment by the researcher with the help of checklist using a manikin. Next day the investigator taught about Basic Life Support. Post test was conducted after two weeks using the same knowledge questionnaire and skill checklist. The results revealed that 86.7 % were having poor knowledge and skill regarding Basic Life Support. Statistical analysis using wilcoxon signed rank test revealed that training programme, constituting teaching session and demonstration of Basic Life Support was effective in improving knowledge ($Z = 5.014$) and skill ($Z = 4.765$) of youth at $p < 0.001$. A statistically significant correlation was found between knowledge and skill of youth.

Keywords: *basic life support (BLS); knowledge; skill; training programme; youth.*

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Keywords: basic life support (BLS); knowledge; skill; training programme; youth.

I. Introduction

Cardiac arrest is an important acute emergency situation both in/out of the hospital setups and carries a high level of mortality risk, however, if early Basic life support (BLS) cardio pulmonary resuscitation is initiated, the survival rate can be substantially improved, the knowledge of BLS is a major determinant in the success of resuscitation and plays a vital role in the final outcome of acute emergency situations

II. Methods and Material

A pre experimental one group pre test post test study was conducted on 30 youth studying in a selected college of Kottayam district from 29/01/2018 to 10/03/2018. The present study is intended to determine the effectiveness of the training programme on knowledge and skill regarding Basic Life Support among youth. The knowledge regarding Basic Life Support was assessed by structured questionnaire and skill was assessed by observation checklist.

The knowledge and skill score level were categorized as good, average and poor. Pre test was done to assess the knowledge and skill regarding Basic Life Support. The training programme was conducted for one hour duration including teaching and demonstration of adult Basic Life Support using a manikin, followed by practice session of 30 minutes for 3 consecutive days. Post test was done using same tools after 2 weeks.

III. Results

The pre test and post test was done by using same questionnaire and checklist. The study showed that 33.4% of youth are in the age group between 18-19 years and 66.6% are in between 20-21 years. Majority of the youth (63.3%) are females and 36.7% are males (Table1). Pre test knowledge and skill score revealed that 86.7% of youth are having poor score regarding Basic Life Support and 13.3% are having average score (Table 2&3). The effect of training programme on knowledge and skill of youth was done by Wilcoxon signed rank test and found to be 5.01 and 4.76 respectively which are statistically significant at p=0.001 level. Spearman's rank correlation coefficient test showed a positive correlation between knowledge and skill significant at 0.01 level.

Table 1: Frequency distribution and percentage of youth based on age and gender (n=30)

Sample characteristics	f	%
Age in years		
18-19	10	33.4
20-21	20	66.6
Above 21	0	0
Gender		
Male	11	36.7
Female	19	63.3

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Author σ: Associate Professor, Govt. College of Nursing, Kottayam.

Table 2: Frequency distribution and percentage of youth regarding knowledge on Basic Life Support (n=30)

Knowledge	f	%
Good (19-28)	0	0
Average (10-18)	4	13.3
Poor (0-9)	26	86.7

Table 3: Frequency distribution and percentage of youth regarding skill on Basic Life Support (n=30)

Skill	f	%
Good (19-27)	0	0
Average (10-18)	4	13.3
Poor (0-9)	26	86.7

Table 4: Mean rank, sum of ranks and Z value of pre test and post test knowledge scores of youth (n=30)

Group	Knowledge Scores		
	Mean rank	Sum of ranks	Z
Pre test	0.00	0.00	5.01***
Post test	13.50	351.00	

***significant at .001 level

Table 5: Mean rank, sum of ranks and Z value of pre test and post test skill scores of youth (n=30)

Group	Skill Scores		
	Mean rank	Sum of ranks	Z
Pre test	.00	.00	4.76***
Post test	14.5	406.00	

***significant at 0.001 level

Table 6: Correlation between knowledge and skill of youth (n=30)

Variable	ρ
Knowledge	0.74**
Skill	

IV. Discussion

The findings of the present study shows that majority of youth (86.7 %) were having poor knowledge regarding Basic Life Support and 13.3% were having average knowledge and it is congruent with the findings of a study carried out in Florida that the most of the youth had 50% or below the passing scores on knowledge regarding Basic Life Support with a mean range of scores between 28% and 84%.

The findings of the present study shows that majority of youth (86.7 %) were having poor skill regarding Basic Life Support and 13.3% were having average skill. A similar study was conducted in high school students, that revealed 70.5% of students had poor skill regarding Basic Life Support.

Findings of present study reveals that there was a statistically significant ($p < 0.001$) difference in the pre test and post test scores of knowledge and skill of youth regarding Basic Life Support signifying the effectiveness of training programme. The present study gains strength from a similar study done to assess the effectiveness of Basic Life Support training on knowledge of life saving skill among college students. The overall study findings revealed that there was significant increase in knowledge and skill of degree students on Basic Life Support technique.

The study result showed that correlation coefficient was 0.74 which showed a positive correlation between knowledge and skill of youth regarding Basic Life Support which was significant at $p<0.01$.

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Acute Myocardial Infarction due to Double Coronary Artery Thrombosis: Double Trouble. Case Report from Two Subjects

By Dr. Suraj Kumar Kulkarni, Prof. B C Srinivas, Dr. Vikram B Kolhari & Dr. Prasanna Katti

Abstract- Acute ST elevation myocardial infarction (STEMI) from simultaneous thrombosis of more than one coronary artery is an uncommon entity. The outcome can be devastating due to the large myocardium that is affected. The mechanism of simultaneous multivessel coronary occlusion is not clear. We should consider conditions such as essential thrombocythemia, multivessel spasm, hypercoagulable state, cocaine abuse, endocarditis, left ventricular clot emboli, or a paradoxical emboli. Traditional risk factors such as diabetes, hyperlipidemia, and smoking also play a role. Here we describe two cases wherein simultaneous thrombotic occlusion were noted in the same setting.

Keywords: *myocardial infarction, double coronary occlusion, cardiogenic shock.*

GJMR-I Classification: *NLMC Code: WG 610*

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Dr. Suraj Kumar Kulkarni [α], Prof. B C Srinivas [σ], Dr. Vikram B Kolhari [ρ] & Dr. Prasanna Katti [ω]

Abstract- Acute ST elevation myocardial infarction (STEMI) from simultaneous thrombosis of more than one coronary artery is an uncommon entity. The outcome can be devastating due to the large myocardium that is affected. The mechanism of simultaneous multivessel coronary occlusion is not clear. We should consider conditions such as essential thrombocythemia, multivessel spasm, hypercoagulable state, cocaine abuse, endocarditis, left ventricular clot emboli, or a paradoxical emboli. Traditional risk factors such as diabetes, hyperlipidemia, and smoking also play a role. Here we describe two cases wherein simultaneous thrombotic occlusion were noted in the same setting.

Keywords: myocardial infarction, double coronary occlusion, cardiogenic shock.

I. Introduction

Simultaneous thrombosis in more than one coronary artery is an uncommon finding seen in nearly 2.5% of all patients undergoing primary percutaneous intervention (PCI). (1) The incidence is low as most of these patients die from sudden cardiac death (SCD). Autopsy studies in SCD patients revealed a higher incidence of nearly 50%. (2)

Several theories are postulated for simultaneous thrombosis including the presence of a hypercoagulable state or increased catecholamine surge and inflammatory response caused by the occlusion of the first artery causing thrombosis of the other, but the cause is still unclear [1]. In this study we present two cases of double coronary thrombosis myocardial infarction and discuss our management of the case, the possible causes and the outcomes of this high-risk presentation.

II. Case Report

Patient 1

A 25 year old male patient with no risk factors presented to our institute with complaints of severe retrosternal chest pain of 2 hours duration with diaphoresis. No prior history of exertional angina or breathlessness.

On examination he had a pulse rate of 34 bpm, BP of 100/60 mm Hg. Cardiac examination was unremarkable.

ECG revealed ST elevation in leads V2-V6, II, III, aVF with 2:1 AV block (Fig. 1). He had received two doses of Reteplase 10 mg each 30 minutes apart. The pain was persistent and repeat ECG showed ST elevation in leads II, III, aVF with resolution of ST elevation in precordial leads (Fig. 2). A coronary angiogram was subsequently performed which revealed Mid LAD 80% thrombus containing lesion and Mid RCA total occlusion (Fig. 3, 4, Video 1, 2).

The RCA lesion was crossed using a guide wire. This was followed by deployment of a drug eluting stent (DES), with good angiographic results (Fig. 5, Video 3). The patient was given Gp IIb/IIIa inhibitor. A check CAG after one day revealed mild disease in Mid LAD (Fig. 6, Video 4). The patient was discharged on Ecosprin 75 mg OD, Ticagrelor 90 mg BID, Rosuvastatin 40 mg OD, ACE inhibitor and beta blocker.

Patient 2

A 46 year male patient, smoker presented to us with complaints of sudden onset retrosternal chest pain with radiation to left shoulder with sweating. No prior history of exertional angina or breathlessness.

On examination he had a pulse rate of 94 bpm and BP of 100/60 mm Hg. Cardiac examination was unremarkable.

ECG revealed ST elevation in leads aVR with ST depression in leads II, III, aVF, V2-V6, I, aVL (Fig. 7). A diagnosis of acute posterior wall MI was made. A coronary angiogram was performed which revealed total occlusion of Proximal LCX and Mid RCA (Fig 8, 9, Video 5, 6). The LCX lesion was crossed using a guide wire. The lesion was predilated with a 2.5 X 15 mm Across HP balloon @ 10 atm followed by deployment of a 2.75 x 28 mm Xience prime DES and 2.5 x 12 mm Xience Xpedition DES (Fig.10, Video 7).

The RCA lesion was crossed using a guide wire. The lesion was predilated with a 2.5 x 15 mm balloon followed by deployment of a 2.5 x 23 mm Xience prime DES, postdilated with a 2.75 x 12 mm NC balloon with good angiographic results (Fig.11, Video 8).

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III. Discussion

Acute STEMI is usually due to occlusion of a single coronary artery, but rarely we come across occlusion in more than one coronary arteries simultaneously. The incidence is reported to be around 1.7 to 4.8 % of all primary PCI (1), but autopsy studies in patients of SCD have reported simultaneous occlusion of more than one coronary vessel in 50% of the cases. (2) The low incidence is owing to higher complications in such cases wherein death occurs before reaching the hospital. Simultaneous multi-vessel coronary thrombosis can occur secondary to cocaine abuse, anti-thrombin III deficiency, idiopathic thrombocytopenic purpura, as well as thrombophilias such as antiphospholipid antibodies, factor V Leiden deficiency, and essential thrombocytosis. (3) The most common presentation is cardiogenic shock or sudden cardiac death which occurs in 40-50% of the cases (4).

The factors involved in simultaneous acute thrombosis of multiple coronary arteries is not clear, possible factors include (a) catecholamine surge with heightened inflammatory response caused by the acute occlusion of 1 vessel, resulting in a second coronary arterial occlusion; (b) hypotension from hemodynamic instability due to the occlusion of 1 coronary artery, resulting in stasis and acute occlusion in another artery with a preexisting lesion; (c) prolonged coronary vasospasm (cociaine use or Prinzmetal's angina (5) (d) hypercoagulable states due to malignancy and thrombocytosis (6) and (e) coronary embolism (7).

Multiple coronary artery thrombosis with ST-segment elevation MI are uncommon. Isolated cases of simultaneous occlusion of coronary artery are reported in the literature, as a result defining treatment strategies is difficult. Revascularization should be done as early as feasible and mechanical support may be necessary to improve the outcome.

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A New Palliative Surgical Technique for High Risk Total Anomalous Pulmonary Venous Connection (Sarmast-Takriti Shunt)

By Dr. Hossein Sarmast & Dr. Ahmad Takriti

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Abstract- *Objectives:* Total Anomalous Pulmonary Venous Connection (TAPVC) is a rare heterogeneous condition. That accounting for 1.5-3% of congenital heart diseases. It is characterized by failure of the Pulmonary Venous Confluence (PVC) to be directly connected to the left atrium in combination with a persistent splanchnic connection to the systemic venous circulation. The most critical status occurs when it is accompanied by pulmonary venous obstruction. Managing of this situation is very difficult and in fact, pulmonary venous obstruction is usually lethal. The real aim of this study is offering a new palliative surgical technique(Sarmast – Takriti Shunt) in order to alleviate the patient's signs and symptoms until becomes read for the main surgical correction.

Methods: The study included a 4–day old, low birth weight boy who suffered from Critical Obstructive Total Anomalous Pulmonary Venous Connection. The decision was made to perform the new palliative technique using Gore-Tex (ePTFE). Anastomosis was established without Cardiopulmonary Bypass (CPB) between Pulmonary Venous Confluence (PVC) and the left atrial appendage. Therefore the Sarmast – Takriti Shunt (STS) was taken place.

Keywords: *total pulmonary venous connection, low birth weight, sarmast-takriti shunt (STS), pulmonary venous obstruction, pulmonary venous confluence palliative surgical technique.*

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Results and Conclusions: After completion of the procedure, the pressure gradient across the venous confluence and the Left innominate vein became zero. Cyanosis, agitation and feeding Problem subsided. Three days later, when he was discharged, arterial oxygen saturation had reached as high as 91%. After seven months we perfomed the main correction.

Keywords: total pulmonary venous connection, low birth weight, sarmast-takriti shunt (STS), pulmonary venous obstruction, pulmonary venous confluence palliative surgical technique.

I. Introduction

Total anomalous pulmonary venous connection is a rare heterogeneous anomaly, accounts for 1.5–3% of congenital heart diseases (1). It is characterized by abnormal return of whole pulmonary venous blood flow to the right atrium orsystemic venous tributaries due to its persistent splanchnic connection (2). A concomitant right to left shunt, commonly via an Interatrial communication, is required for survival after birth. Darling classified it in four categories: Supra-cardiac 45%, cardiac 25%, Infra-cardiac 25% and mixed type 5-10% (3).

At one end of the spectrum, there are completely unobstructed circulation, these neonates present with a large left to right shunt manifestations. At the other end there are severe PVO. Neonates born with TAPVC have poor prognosis with approximately 80% mortality in the first year of life. Both obstructed and non-obstructed types of TAPV pose an absolute indication for surgical repair (4). In PVO type without intervention the median survival is two months, with the shortest survival being 1 day. Despite greatly improved neonatal care and surgical techniques over the last decade, TAPVC operation is still associated with high hospital mortality, up to 20% (5-6).

II. Case Presentation

A 4 – day old, low birth weight boy (w = 1950 gr) was presented to our department with discrete but increasing cyanosis, tachypnea, respiratory distress, hepatomegaly, hypoxia (SaO_2=70%), gasping, poor feeding and severe metabolic acidosis. The prenatal course was uneventful and he was born by normal vaginal delivery on gestational age=38.5 w.

The patient didn't carry any congenital heart disease (CHD) history in his genetically close relatives (first, second and third degree). Immediate and brief work up was carried out. Chest X Ray (CXR) showed normal heart size with ground glass appearance in all the lung fields (fig.1. a). Color Doppler and 2D- echocardiography revealed the total anomalous pulmonary venous connection (TAPVC – supra cardiac type), accompanied by significant gradient between the drainage point of vertical vein to the left brachiocephalic vein and the pulmonary veins with flow acceleration > 3.0 m/sec (pulmonary venous obstruction). It was also uncovered presence of the ASD secundum, as the natural last resort for being alive. The vertical vein was noted to be compressed as it coursed posterior the left pulmonary artery and anterior the left main bronchus (fig. 1.b). According to the aforementioned findings, the boy had almost met most of incremental risk factors leading to mortality after conventional operations.

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Therefore the decision was made to a new palliative surgical procedure for the first time. In order to preoperative medical stabilizing we administere 100% O_2 with the aim of promoting respiratory alkalosis as well as nitric oxide as a pulmonary vascular dilator, since the patient had severe metabolic acidosis besides Pulmonary hypertension (PHT). Under general anesthesia, median sternotomy and partial thymectomy were carried out. The pericardium was opened in vertical fashion then prudent purse-string sutures as standby were placed on ascending aorta and right atrial appendage (without using CPB). After intravenous heparinization (100 U/kg), at first some dissections were done from left lateral side between heart and pulmonary venous confluence then the dome of the left atrium was exposed. The posterior pericardium just superior the dome of LA was incised and PVC was appeared (fig. 2). Using a side – biting clamp on the PVC, a longitudinal incision was made. The proximal head of a Gore-Tex (ePTFE) with appropriate size (diameter= 6 mm) that had been prepared and beveled, was anastomosed to PVC using continuous 6-0 polypropylene suture. Under topical cooling of heart and using a side-biting clamp on left atrial appendage (LAA), the distal end of Gore-Tex was anastomosed to LAA. After deairing with heparinized saline as routine, the clamp was removed. The Sarmast-Takriti Shunt (STS) between PVC and LA was established (fig. 3). Immediately after completion of the procedure, cyanosis began to decrease. We performed the main operation 7-months later with excellent outcome when he had already sustained satisfactory weight (w= 7030 gr), as follows: After the establishment of CPB, the shunt was removed. To reduce the risk of residual obstruction of PVC due to pocket-like contraction our team preferred modified septosuperior approach (komarakshi technique). A direct anastomosis between PVC and L. A, ligation of the VV and closure of ASD with autopericardial patch were achieved in one stage repair.

III. Results and Discussion

Evaluation of pressures before intervention in the operation room and after correction are illustrated in the (table.). Immediately after completion of surgery (STS), the pressure of PVC decreased to the point where its pressure gradient became zero. Blood oxygenation improved up to 84% (preoperative SaO_2 was 70% on 100% oxygen) and cyanosis, agitation, feeding Problem subsided. Three days later, when he was discharged, arterial oxygen saturation had reached as high as 91%. Despite good advances in treating of TAPVC in recent decades, this severe malformation in its various anatomical forms remains a challengeable entity during early infancy. Significant obstruction to pulmonary venous drainage results in pulmonary edema in the presence of a normal size and shape of the heart and cardiogenic shock which is rapidly lethal if untreated. Almost all reports have declared that perioperative high mortality associates with PVO, low weight (W<2.5-3 kg), early age (A<2m), severe preoperative acidosis, long time of Aortic Cross Clamp (ACC) and cardiac arrest. The second frontier in the treatment of TAPVC is represented by postoperative PVO. In such a difficult situations, if patients survive from operation, most of them will require multiple postoperative surgical interventions due to recurrent PVO with an increasingly poor outcomeat each representation (7). Medical efforts are minimally effective in managing the ensuing hemodynamic and metabolic problems so their use is limited to provide some short lived conservative therapy until definitive surgical treatment is carried out. PVO is usually lethal, even with reoperation and extensive attempts at revision or repair (8). This lack of success has led to alternative treatments such as balloon dilatation and stenting. The Rashkind Operation or Balloon Atrial Septostomy (BAS) has been used with some success to decompress the pulmonary venous pressure and improve C/O in the restricted ASD, but these don't appear to provide additional benefit. Moreover several reportshave proposed the use of percutaneous angioplasty and stenting of the obstructed vein to palliate shock and improve preoperative metabolic state. Research showed during the median cross - sectional follow up of 3.1 years estimated mortality was 38+/- 8% at 1 year and 50+/- 8% at 5-years after stent implantation.

Necessity for reintervention (owing to occlusion of stent), was 58+/-7% at 1-year. In 1996 sutureless repair technique was described, using in situ autologous pericardium for recurrent pulmonary vein stenosis following main TAPVC surgery (9). Subsequent reports emphasize the utility of this technique in selected patients as main procedure. Despite interest in the sutureless technique, there is little firm evidence that it provides a benefit over conventional techniques used a retrospective analysis to compare the outcomes of death and restenosis after conventional and sutureless techniques. By multivariable analysis, there was no statistically significant difference between the conventional and sutureless techniques. We encountered with a patient, who had almost encompassed all critical risk factors that were sufficient to make the operative prognosis very poor. We believed that Sarmast-Takriti Shunt (STS) would ensure adequate postoperative hemodynamics for symptomatic neonate and prompt left cardiac side rehabilitation. The STS with confined heparin (100U/kg), was carried out without using CPB with an intention to reduce the morbidity associated with extra corporeal circulation. Eliminating CPB reduced the cost of the procedure substantially and saved the patient from its inherent complications. (10) After procedure the enough time was prepared on behalf of the heart to compensate its chambers especially the right ventricle and left atrium and ensure endurable state

for the main surgery. Although our experience was limited to STS in supracardiac type, we are optimistic and hopeful to its feasibility and usefulness in other types of TAPVC. Now, we are so satisfied owing to be able to help such a complicated neonate.

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Funding statement

As we are from lower income country, the processing charge has been waived.

Conflict of interest statement

None declared.

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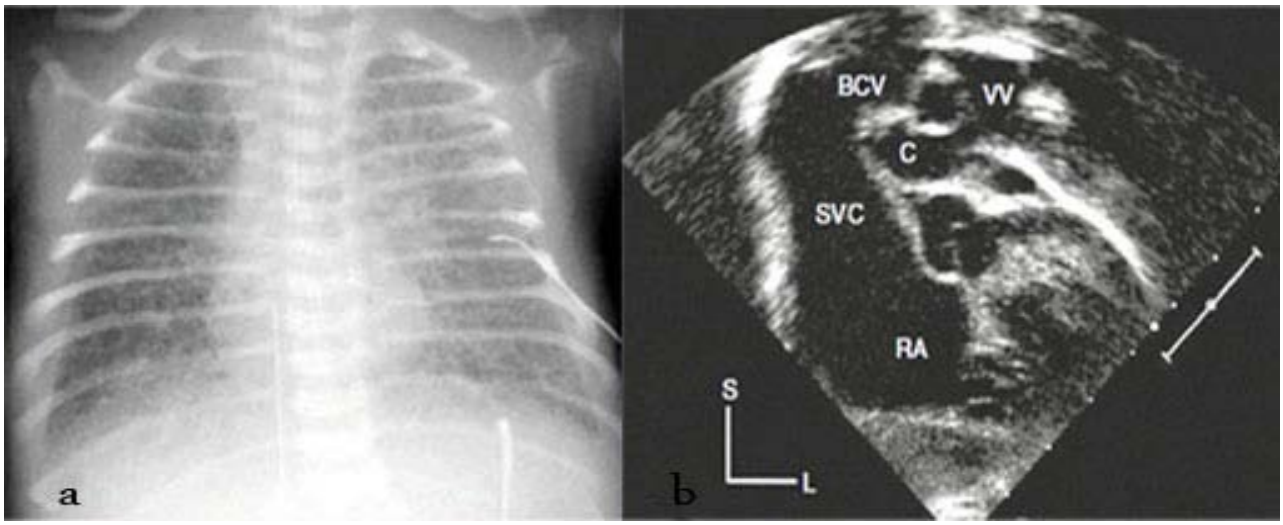

Figure 1: 4-days old male with total anomalous pulmonary venous connection accompanied by pulmonary venous obstruction: a- CXR: Note mild cardiac enlargement and evidence of pulmonary venous hypertension ("ground glass" appearance). b- 2D-Echocardiography shows compressed vertical vein between lt pulmonary artery and lt main bronchus.

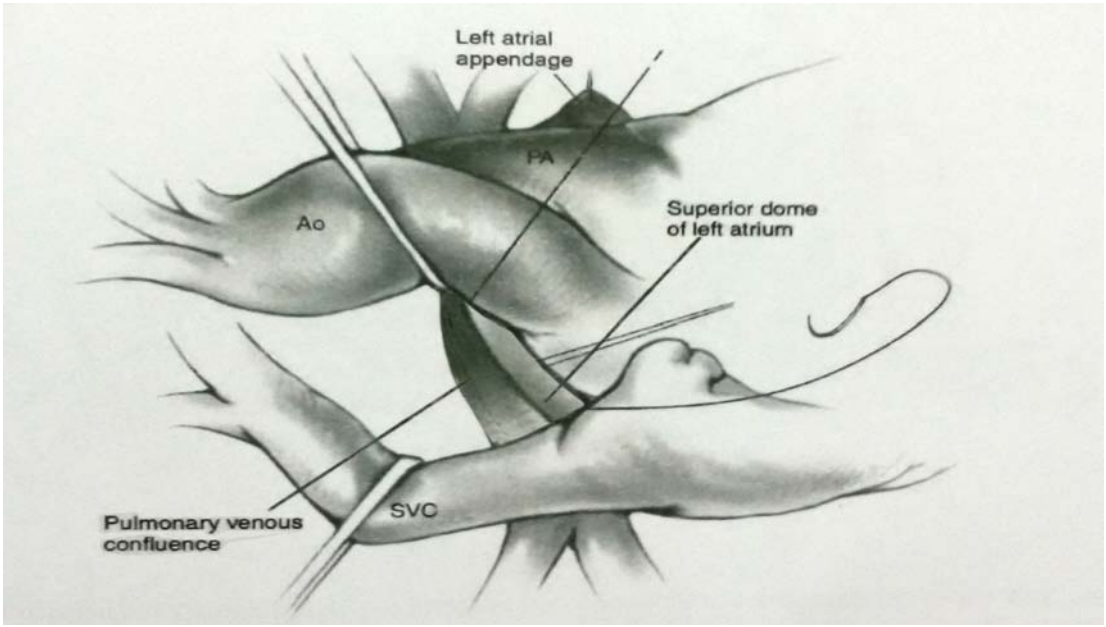

Figure 2: Schematic illustration of superior approach in 4-days old male with total anomalous pulmonary venous connection.

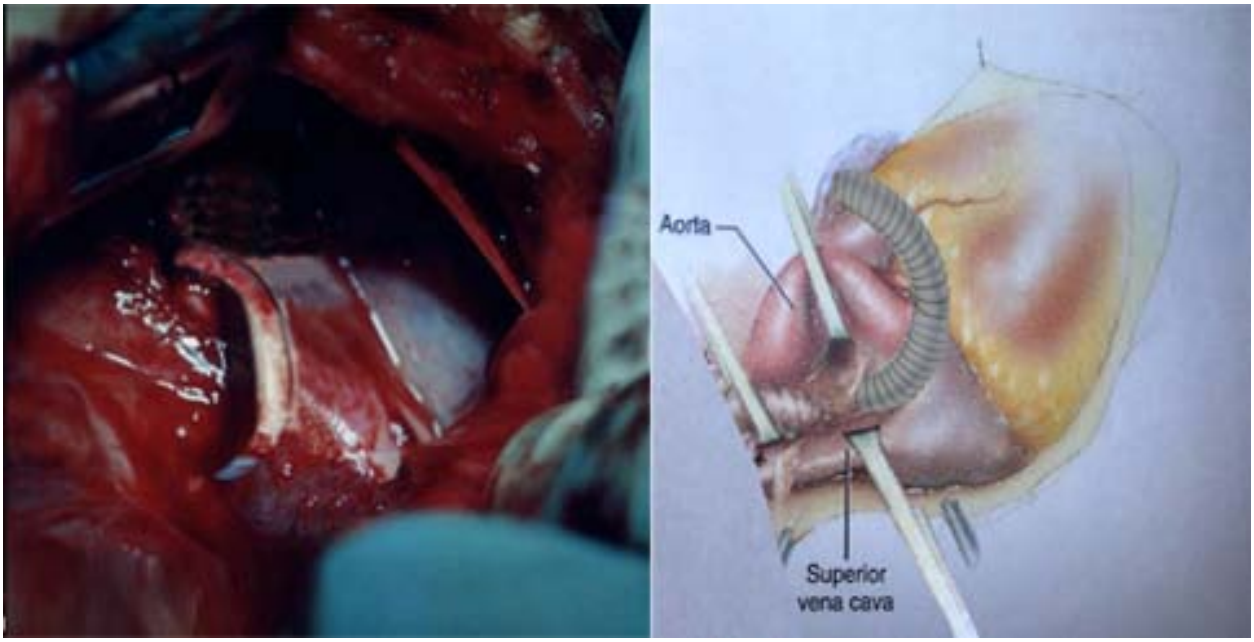

Figure 3: Schematic and operational photo illustrations of sarmast - takriti shunt (STS) in 4-days old male with total anomalous pulmonary venous connection.

Table 1: Preoperation and postoperative cardiac pressures of 4-days old male with total anomalous pulmonary venous connection accompanied by pulmonary venous obstruction.

	PVC Mean Pressure	Left Brachiocephalic Vein	Left Atrium	Right Atrium	Right Ventricle	Pulmonary Artery
Preoperative pressures (mmHg)	29	9	8	9	61/13	59/31
Postoperative pressures (mmHg)	8	8	9	8	32/10	28/15

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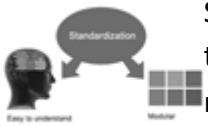

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Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

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Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

Color charges: Authors are advised to pay the full cost for the reproduction of their color artwork. Hence, please note that if there is color artwork in your manuscript when it is accepted for publication, we would require you to complete and return a Color Work Agreement form before your paper can be published. Also, you can email your editor to remove the color fee after acceptance of the paper.

Tips for writing a good quality Medical Research Paper

1. Choosing the topic: In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

2. Think like evaluators: If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

3. Ask your guides: If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

4. Use of computer is recommended: As you are doing research in the field of medical research then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

5. Use the internet for help: An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow here.

6. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

7. Revise what you wrote: When you write anything, always read it, summarize it, and then finalize it.

8. Make every effort: Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

9. Produce good diagrams of your own: Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

10. Use proper verb tense: Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

11. Pick a good study spot: Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

12. Know what you know: Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

13. Use good grammar: Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

14. Arrangement of information: Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

15. Never start at the last minute: Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

16. Multitasking in research is not good: Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

17. Never copy others' work: Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

18. Go to seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

19. Refresh your mind after intervals: Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

20. Think technically: Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.

21. Adding unnecessary information: Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

22. Report concluded results: Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

23. Upon conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

Final points:

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

The introduction: This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

The discussion section:

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear: Adhere to recommended page limits.

Mistakes to avoid:

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

Title page:

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

Abstract: This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

Reason for writing the article—theory, overall issue, purpose.

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

Approach:

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

Introduction:

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.

The following approach can create a valuable beginning:

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.

Approach:

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

Procedures (methods and materials):

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

Materials may be reported in part of a section or else they may be recognized along with your measures.

Methods:

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

Approach:

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

What to keep away from:

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.

Content:

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

What to stay away from:

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

Approach:

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

Figures and tables:

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

Discussion:

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."

Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

The Administration Rules

Administration Rules to Be Strictly Followed before Submitting Your Research Paper to Global Journals Inc.

Please read the following rules and regulations carefully before submitting your research paper to Global Journals Inc. to avoid rejection.

Segment draft and final research paper: You have to strictly follow the template of a research paper, failing which your paper may get rejected. You are expected to write each part of the paper wholly on your own. The peer reviewers need to identify your own perspective of the concepts in your own terms. Please do not extract straight from any other source, and do not rephrase someone else's analysis. Do not allow anyone else to proofread your manuscript.

Written material: You may discuss this with your guides and key sources. Do not copy anyone else's paper, even if this is only imitation, otherwise it will be rejected on the grounds of plagiarism, which is illegal. Various methods to avoid plagiarism are strictly applied by us to every paper, and, if found guilty, you may be blacklisted, which could affect your career adversely. To guard yourself and others from possible illegal use, please do not permit anyone to use or even read your paper and file.

Criterion for Grading a Research Paper (Compilation) by Global Journals

Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals.

Topics	Grades		
	A-B	**C-D**	**E-F**
Abstract	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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