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Prostate-Specific Antigen Levels

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Discovering Thoughts, Inventing Future

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Intubation Types among Paramedic and Anesthesia

By Shammah A A, Abdullah M Bani Yousef, Ahmed Ali Khalid, Nasser B H & Hisham Karar

Umm Al-Qura University

Abstract- Background: The role of intubation is practiced in most respectful universities for many medical students, especially the paramedic and anesthesia students through controlled anesthesia simulation labs.

Aim: The study aims to evaluate the learning outcomes of various types of intubation for paramedic and anesthesia students before and after studying two courses of airway management in the department of clinical technology.

Methods: A model for measuring, comparing, and analyzing the fields of knowledge about skills and experiences obtained by the students is prepared. Students are enrolled from the emergency medical service and the anesthesia department of clinical sciences at the Faculty of Applied Medical Sciences at Umm Al-Qura University in Makkah Al-Mukarramah.

Results: Psychomotor skills were the most important domain among students in EMS department, followed by airway compromise knowledge, intention or attitude, and effective communication.

Keywords: EMS paramedics, endotracheal, glidescope, intubation, technology.

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Intubation Types among Paramedic and Anesthesia

Shammah A A [α], Abdullah M Bani Yousef [σ], Ahmed Ali Khalid [ρ], Nasser B H [ω] & Hisham Karar [¥]

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Results: Psychomotor skills were the most important domain among students in EMS department, followed by airway compromise knowledge, intention or attitude, and effective communication. Compromise knowledge was the most important domain among students in the Anesthesia department, followed by psychomotor skills, effective communication, and intention or attitude.

Conclusion: Medical student ETI proficiency was related to cumulative clinical procedural experience in this study. A viable strategy might be presented by clinical experience to foster medical student procedural skills.

Keywords: EMS paramedics, endotracheal, glidescope, intubation, technology.

I. Introduction

Emergency airway management is an essential and crucial element of resuscitation of critically ill patients [1]. The success rates of prehospital endotracheal intubation vary from 69% to 98.4%. There are several categories into which factors contribute to this differentiability in success [2]. These categories include paramedic experience, system factors, and patient factors. A constant challenge has been experienced by paramedics to obtain appropriate exposure to opportunities for performing this critical process as well as balancing this cognitive skills and demanding guidelines [3-5]. The invasive procedure is considered for airway management that allows futuristic appropriate and sufficient administration of medical gases to susceptible patients who are incompetent for carrying out appropriate ventilation throughout different medical or surgical processes [4]. Intubation is one part of airway management, which is considered a lifesaving procedure in several cases [5, 6].

Endotracheal intubation (ETI) has a 30% failure rate in pre-hospital settings by non-physicians in extreme conditions [7]. There are some limitations to use ETI in prehospital settings, even though EETI is a lifesaving and important procedure to secure the airway. Therefore, appropriate guidelines of ETI indicate that it should be performed by skillful, current, and expert personnel such as paramedics or practitioners [8]. In contrast, such personnel lack due to financial crisis in most of the emergency settings, specifically in rural and suburban areas [9]. Also, ETI has been done by gag reflexes, laryngeal spasm, and paralyzing the patient for preventing the head movement. Drug usage is prohibited for Emergency Medical Technician Intermediate, controversial for paramedics, and emergency medical technician basic [10]. Continual and multiple intubation efforts are related majorly with respiratory issues as the intubation failure rate is comparatively high. Also, intubation is a technically difficult procedure and time-consuming procedure, which makes it unrealistic in some conditions, which include trauma patients suffering from bleeding [11].

There is a lack of evidence regarding the requirement of ETI training experts for achieving adequately high success rates with advanced airway management [12]. A median number of total ETIs per student of seven is described from the complete survey of paramedic training programs with suggestions that approximately 25 ETIs are required for achieving an overall ETI success rate of 90% [13]. Several intermediate airway management techniques include placement of oral or nasal airway devices and bag-mask ventilation used by Emergency Medical Technicians [14]. The placement of oropharyngeal airways such as King LT tube, Laryngeal Mask Airway, and Combitube is involved for the most advanced airway management techniques. These airways are reserved for the advanced level of prehospital providers such as physicians or paramedics [4]. Also, airway rescue device placement, cricothyroidotomy, capnography, and endotracheal intubation remain the responsibility of either physicians or paramedics with advanced airway training [9]. Recently, progressions in the refinement of

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oropharyngeal and video-assisted laryngoscopy (VAL) have shown the potential to add or change to the conventional approach of prehospital airway management [11].

It is crucial to continue the process of evaluation and refinement oflearning outcomes for the students taught airway courses during the successive years to adopt new strategic plans for better student learning outcomes. The role of intubation is practiced in most respectful universities for many medical students especially the paramedic and anesthesia students through controlled anesthesia simulation labs provided by highly computerized manikins that can sense even a small fraction of error in intubation procedures. In this regard, the study aims to evaluate the learning outcomes of various types of intubation for paramedic and anesthesia students before and after studying two courses of airway management in the department ofclinical technology. The study is significant in the context of Saudi Arabia, where there lacks evidence regarding the association between the level of both education of students and their training about intubation with the clinical patient outcomes of care.

II. Material and Methods

The study had used National Registry Checklist for evaluating the student performance before and after the teaching of two Airway Management Courses where students had practical sessions and lectures with laboratory simulations and video demonstrations for all types of intubation over a minimum of two semesters (30 weeks). An evaluation form is developed for measuring the four domains of learning, which include (1) intention and attitude toward helping students; (2) psychomotor skills obtained for managing airways compromise; (3) effective communication with self, patients, and all the health team members; and (4) knowledge about anatomy, diagnosis, physiology, and management of airways compromise. The study has collected data from the paramedic and anesthesia technology students' pre and post airways management courses (n = 128). The study has measured knowledge, attitude, skills, and effective communication for all students before and after the two courses in the class.

An unblended observer records the following outcomes (1) overall intubation success rate; (2) number of intubation attempts; (3) modified Cormack-Lehane score; (4) intubation time; (5) frequency of esophageal intubation; (6) mucosal trauma; (7) lip or dental injury; and (8) desaturation (SpO2 <95%).

a) Procedures

Intubation using Glide Scope video laryngoscopes can be simplified when applying the following points:

1. Successful oral endotracheal tube (ETT) placement always requires some form of a stylet, such as the Glide Rite Rigid Stylet (Verathon)—a reusable rigid stylet—or the Satin-Slip (Mallinckrodt) disposable intubating stylet. Otherwise, the ETT is floppy and very hard to direct through the vocal cords. A stylet is not used for nasal intubation.
2. The primary limitation in using the Glide Scope is not in getting a good view of the glottis, but rather in manipulating the ETT through the vocal cords. This is because the ETT tip often tends to hit against the anterior tracheal wall. When this happens, it is often helpful to retract the stylet by 3 to 5 cm, as this often advances the ETT into a more favorable position. Sometimes, even when the stylet is removed completely, the ETT still abuts against the anterior tracheal wall; in these cases, the ETT should be twisted by 180 degrees.

When initially placing the Glide Scope video laryngoscope blade or the ETT, learners should first look into the patient's mouth and not at the monitor to prevent injury to any oropharyngeal structures.

b) Statistical Analysis

The baseline characteristics are presented using descriptive statistics. Categorical data are expressed as counts, whereas continuous variables are given as mean ± standard deviations. The general linear model analysis of variances (ANOVA) is used to compare the means of different domains. All calculations were performed using the IBM SPSS software for Windows, version 20.

III. Results

Table 1 presents a descriptive analysis for department and evaluation. The findings have shown that a total of 65 students belong to the anesthesia department (50.8%), whereas 63 students belong to the EMS department (49.2%). Also, a total of 67 students were evaluated for post-course, and 61 students were evaluated for pre-course knowledge.

Table 1: Descriptive Analysis for Department and Evaluation

Department	Frequency	Percent
EMS	63	49.2
Anesthesia	65	50.8
Total	128	100.0
Evaluation	**Frequency**	**Percent**
Pre	61	47.7
Post	67	52.3
Total	128	100.0

The statistical difference for domains in the EMS department is presented in Table 2 using the ANOVA test. The findings have shown a significant mean difference for all domain's knowledge among students in the EMS department. Psychomotor skills were the most important domain among students in the EMS department, followed by airway compromise knowledge, intention or attitude, and effective communication.

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Table 2: ANOVA Test for Different Domains in EMS Department

Domain Name	Evaluation Pre or Post	Number of cases	Mean	P- value
Intention /attitude	Pre	31	.0758	.000
	Post	32	.3491	
Communication Knowledge	Pre	31	.1285	.000
	Post	32	.3029	
P Skills	Pre	31	.1566	.000
	Post	32	.3544	
Effective Communication	Pre	31	.0387	.000
	Post	32	.3333	

The statistical difference for domains in the Anesthesia department is presented in Table 2 using the ANOVA test. The findings have shown a significant mean difference for all domain's knowledge among students in the Anesthesia department. Compromise knowledge were the most important domain among students in the Anesthesia department, followed by psychomotor skills effective communication, and intention or attitude.

Table 3: ANOVA Test for Different Domains in Anesthesia Department

Domain Name	Evaluation Pre or Post	Number of cases	Mean	P- value
Intention /attitude	Pre	30	.0181	.000
	Post	35	.5014	
Compromise Knowledge	Pre	30	.0941	.000
	Post	35	.3170	
Psychomotor Skills	Pre	30	.0688	.000
	Post	35	.3804	
Effective Communication	Pre	30	.0647	.000
	Post	35	.4493	

IV. Discussion

The study has evaluated the learning outcomes of various types of intubation for paramedic and anesthesia students before and after studying two courses of airway management in the department of clinical technology. Psychomotor skills were the most important domain among students in EMS department, followed by airway compromise knowledge, intention or attitude, and effective communication. On the contrary, compromise knowledge was the most important domain among students in the Anesthesia department, followed by psychomotor skills effective communication, and intention or attitude. The deliberate practice model of Ericsson offers a theoretical framework to understand the ETI skill utilization in this study. Repetition alone might not lead to an expert or superior skill levels, whereas experience might enhance performance in an activity. It has been argued that students practicing deliberate practice must be involved in intense goal-directed learning for achieving higher levels of proficiency [15, 16]. The student must pursue learning activities for correcting limitations and enhancing performance and must be merged with immediate correction, remediation, repetition, and feedback. Students must perform tasks outside their existing areas of authentic performance to involve in deliberate practice.

This study has illustrated that students must perform tasks outside their current areas to depict the utilization of fundamental ETI skills by novice medical students regardless of previous specialized airway management skills. Additional specialized goal-directed learning must be achieved by an expert-level ETI beyond the scope of the fundamental anesthesia curriculum [17]. In this study, the complementary using of human-simulator training might have contributed to use ETI skills. It has been argued that ETI proficiency must be obtained by paramedic students using human simulator or training based regardless of the live operating room. Simulated ETI training is included by previous studies before clinical experience [17, 18]. Intensive teaching without any distractions of current clinical care is facilitated by simulator/mannequin-based training theoretically to allow for isolated or concentration elements of a skill or process. However, the design of this study did not allow assessment of the interactive or independent influence of simulation upon clinical ETI performance.

This study cannot assess the safety of student ETI efforts in the operating room, but it is assumed that the courses were relevant, considering the culture and guidelines of the institution. For instance, the institution has a strict policy to attend anesthesiologist during ETI and anesthesia induction. The majority of student ETIs occurred on patients rated Mallampati class I or II, which indicated that easier cases were intubated preferentially by students. Also, only one medical student laryngoscopy attempt was involved in mostly patient experiences, which signaled the potential limitation of

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student ETI efforts. It has been believed that early medical student exposure to ETI training is authentic until the experience is adequately supervised. Without adequate supervisory culture or resources, institutions might not be able to achieve the same balance between patient safety and education.

a) Limitations

The study was unable to adjust or quantify for prior airway experience. Self-reporting bias might have resulted in over-reporting of student ETI success while supervising anesthesiology staff confirmed all logbook entries. Students in this study might have differently performed easier intubations. In addition, there was a wide variation in the number of ETI chances provided to each student. Other airway management procedures were not evaluated, such as laryngeal mask airway insertion, or bag-valve-mask ventilation. There was no information regarding the attributes of instructors or students. The study has not controlled for patient selection, education, or ETI techniques used and other aspects of clinical care. Similarly, the study has not controlled for differences in instructional technique or instructor, and changes in clinical skill over time.

Performance might have differed with longer or additional clerkship experience. This study has only evaluated psychomotor skills and knowledge-related abilities, which do not allow to evaluate decision-making skills. Intubation performance by medical students should be depicted under supervised and controlled operating room conditions, and cannot be examined outside of this clinical practice setting. Skill utilization might have been influenced by other factors. For instance, the learning process might be influenced by the quality and nature of instructor-trainee interaction. Students might be motivated to pursue critical care-oriented fields for learning ETI, achieving higher rates of early ETI success, and performing a larger number of ETIs.

V. Conclusion

The learning curve for prehospital ETI success rates explains an increase in the odds of successful ETI with each cumulative training exposure to ETI in a paramedic training program with significant clinical opportunities and resources. High numbers of previously performed ETIs might be required for first-pass placement of the ETT that may surpass the number available in training programs. Medical student ETI proficiency was related to cumulative clinical procedural experience in this study. A viable strategy might be presented by clinical experience to foster medical student procedural skills.

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GJMR-F Classification: *NLMC Code: WB 26.5*

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Review of Complete Repertory to the Homoeopathic Materia Medica Diseases of the Eyes, 2nd Edition, by Dr. E. W. Berridge

Dr. Ashutosh Kumar [α] & Dr. E. W. Berridge [σ]

Abstract- This Repertory is indispensable for every homeopath who is willing to practice with scientific accuracy & exactness. One of the clearest and best arranged very useful repertories in the interpretation of the ophthalmic cases, marshaling both symptoms and conditions is adequate as the present state of our understanding.

I. Introduction

This Homoeopathic Repertory is a guide to the pile of symptoms of diverse drugs, and the numerous symptoms can be accurately detected according to the requirement. It adds on nothing, also changes nothing, but provide merely as a guide to the profusion. we all are using one Repertory in every case before prescribing. The majority of us use only our mental Repertory, which is naturally slender because of the limited capacity of the Human brain.

Disparate repertories have evolved over the course of time, and the layout has changed in many of them. Besides the nature and utility of the repertories depends on the quality of the symptoms included in them. This concept of evolution of repertories on the anatomical basis gave to the "Regional Repertories."

In the section on anatomical regions, under the heading "Eyeball (including conjunctiva bulbi)," we find "Tubercles (warts)" with fifteen remedies attached. We are baffled to know if these remedies have caused or cured tubercles.

II. Summary

In this second edition of Dr. Berridge's Repertory contains the symptoms about the eye. It is meant to be used, notably in the treatment of ophthalmic diseases. It contains all the ophthalmic symptoms which occur in the proving of 1171 remedies, arranged under different headings, somewhat after the manner of Dr. Boenninghausen.

The preface states that a perfect Repertory should contain every symptom of the Materia medica under every rubric where it can be looked for, and the book is compiled in accordance with that idea. To effect this, he has divided each chapter of this Repertory into two Sections:

1. The Symptoms themselves and
2. Their Conditions, (including Concomitants).

The Conditions including the Concomitants are arranged in 23 groups as follows:

(1) Time, (2) Situation, stages and External effect, (3) Posture, (4) Touch, (5) Motion, (6) Head (along with Mental Symptoms), (7) Eyes, (8) Ears, (9) Nose,(10) Face & Front of Neck, (11) Teeth, (12) Mouth as well as Throat, (13) Abdomen (along with Stomach, Anus, including all Functional Symptoms thereof, (14) Urinary Organs, (15) Sexual Organs, (16) Chest and Larynx, (17) Back and Nape of Neck, (18) Arms, (19) Legs, (20) Sleep, (21) Fever, (Chills, Sweat, and Heat), (22) Generalities (together with Convulsions, Skin, Bones, Other Drugs, & c.)

Clinical cases are decisive for determining concomitants as it is often challenging or impossible to determine from the proving alone what symptoms are actually connected among each other.

He was in the support of application of the doctrine of analogy for selection of remedy as materia medica of his time was inadequate.

As per Dr. E. W. Berridge, if we wish to obtain maximum benefit from Homoeopathy, then we can only do so by following the three great rules of the Master as follows careful selection of Similimum, Single remedy, and Minimum dose.

III. Gradation of Rubrics

a) *5 Grades*

- 1st Grade: Italic Capitals
- 2nd Grade: Plain Capitals
- 3rd Grade: Italics
- 4th Grade: Roman Letters
- 5th Grade: Roman(Bracketed)–Doubt Full Symptoms

b) *Sources*

- C. Hering's Materia Medica
- Symptoms from later proving.
- Cases of poisoning reported in allopathic journals.

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IV. Abbreviations

The author has used consistent and scientific practice of cyphering of his time. But, it is cast away by scientific nomenclature.

Cyphers of the elements and simple haloid salts are the same as their chemical symbols	Na. = sodium. S. = sulphur
The -ate salts are cyphered by adding –a	Na-sa. = sulphate of sodium.
Ite salts are cyphered by adding –I	Na-si. = sulphite of sodium.
Ic acids are cyphered by adding –x	S-x = sulphuric acid.
Ous acids are cyphered by adding –ix.	S-ix = sulphurous acid
Hydracids cyper by adding –hx to radical	S-hx = sulphydric acid
Ide salts are cyphered by adding –S	Na-s = sulphide of sodium

In the medicines obtained from the Animal as well as Vegetable kingdoms, each genus is customarily revealed by a divergent cypher and by that only.

V. The Chapters as Follows

Table 1

Section I: Symptoms (PP. 1-99)
Further divided into 5 subsections:
IA: Functional Symptoms (PP. 1-14)
IB: Anatomical regions (PP. 14-58)
IC: General character, sequence & directions (PP. 59-74)
ID: Right side (PP. 74-86)
IE: Left side. (PP. 86-99)
Section II: Conditions (Including Concomitants) (PP. 100-312)
Further divided into 2 subsections:
II A: Aggravations (PP. 100-289)
II B: Ameliorations (PP. 290-312)

To explain this Repertory use, Dr. E. W. Berridge mentioned the following cases from his practice:

Case 1

Aug 9, 1871. At 2 pm a child put his finger into his mother's left eye, scratching the upper part of eye ball; smarting in the eye followed with heat, redness and hot lachrymation followed; "cannot open the eye because of pain." Cold water application relieves the pain and watering; the light of day increases the watering.

Remedy Diagnosis

As the symptoms arose from a mechanical cause, the author did not consider the locality (left eye) as a characteristic of the case.

Table 2

Page No.	Rubric	Medicine
290	Relief from Cold-Heat	Al-o, Amm-cl (thu).
	Relief from Cold-Lachrymation	Al-o.
	Relief from Cold-Smarting	Al-o, N-x.
293	Relief from Washing-Heat	Al-o, Amm-cl, asr, k-na (thu)
	Relief from Washing-Lachrymation	Al-o,Asr. Mg-ca.
	Relief from Washing-Smarting	Al-o, Na-ca
175	Worse from Natural Light-Lachrymation	Al-o, Bry, dig, Dl-s, Dt, Eug.Grp, K-bicra, Kre, Lyc, Mg-cl, Qu-sa, S-x. (Str-i), Vr-s, Zn.

Thus *Alumina* alone corresponds to all these symptoms and it was found also to have.

Table 3

Page No.	Symptoms
16	Redness of eyes
47	Difficulty opening if eyelids
24	Hot Lachrymation

He gave a single dose of *Alumina* CM. in fifteen minutes all the symptoms were gone, except a little stiffness.

Case 2

On nov. 6th, three weeks ago when blowing her nose, she felt as if something broke in the right eye, which watered much. Since then, at times, when blowing the nose, has had a feeling as if a tight skin came halfway down over right eye, preventing the sight of that eye; removed by rubbing. After it has gone feeling as if something were pricking the eye; eye waters. On the last two occasions, this sensation came on without blowing the nose.

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Selection of Remedy

Table 3

Page No.	Rubric	Medicine
209	By blowing nose. Sight impaired	K-o.
	By blowing nose. Pellicle.	K-o.

As *Kali Oxidum (Causticum)* was the only medicine which possessed these most characteristic symptoms, and, moreover correspond to the remaining symptoms as a reference to the repertory, So he gave one dose of *Causticum* 6 m. (Jenichen).

Dec. 11th Reports that the symptoms ceased at once and did not return.

VI. Conclusion

Complete repertory to the homeopathic materia medica disease of the eye is one of the useful repertories, in this repertory use perfectly anatomical parts of the eye and a several rubrics are given which help in the selection of remedy. In this repertory given a large number of medicine for supporting the practitioner.

There are also some Limitations:

- Drugs are less in numbers.
- Drugs Grading has not been done.
- The abbreviations are different from the regular using repertories.

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Cytogenetic Findings in Children with Postnatal Growth Retardation

By Osman Demirhan, Nilgün Tanrıverdi, Ömer Faruk Demirhan & Dilara Süleymanova

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Abstract- *Background and Objective:* Chromosomal abnormalities (CAs) might adversely affect fetal and postnatal growth. The aim of this study was to determine the prevalence and type of CAs in patients with postnatal growth retardation (PGR).

Design and Methods: This was the largest study to date in children with PGR in Turkey, and presented the cytogenetic characteristics of 362 patients diagnosed with age range from 1 month to 18 years as having with PGR in a 17 years. The standard protocol for peripheral blood lymphocyte culture was followed by metaphase chromosome preparation and conventional analysis of G-banded chromosomes.

Results: The CAs were detected in 8,0% of 362 patients. The median age at diagnosis was 6,3 years in children. The incidence of abnormal karyotype was higher in females than that of males (the female-male ratio=2.2). The 5,0% of these CAs were structural aberrations, and also numerical aberrations were 3,0%.

Keywords: *postnatal growth retardation; cytogenetic; chromosomal aberrations.*

GJMR-F Classification: *NLMC Code: WQ 500*



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Cytogenetic Findings in Children with Postnatal Growth Retardation

Osman Demirhan [α], Nilgün Tanrıverdi [σ], Ömer Faruk Demirhan [ρ] & Dilara Süleymanova [ω]

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Results: The CAs were detected in 8,0% of 362 patients. The median age at diagnosis was 6,3 years in children. The incidence of abnormal karyotype was higher in females than that of males (the female-male ratio=2.2). The 5,0% of these CAs were structural aberrations, and also numerical aberrations were 3,0%. Specifically, translocations are the most common karyotype (1,4%) among the patients; Inversions were detected in four patients (1,1%). Deletions was present in 2 (0,6%) patients. The ratio of fragilities and isochromosomes was 0,8% and 0,6% of all patients, respectively. Among numerical CAs, 11 patients (3,0%) had aneuploidies.

Conclusion: This study showed that some anomalies detected in PGR patients had shown correlations clinical characteristics of the patients. But, some of them are newly found and need to be investigated. Turner syndrome with various forms of chromosomal complement is the most common chromosomal abnormality causing growth failure in girls: This information could contribute to an understanding of the role of chromosomal changes in PGR.

Keywords: postnatal growth retardation; cytogenetic; chromosomal aberrations.

I. Introduction

Growth retardation can be defined as the failure of the child to show growth appropriate to his or her age and gender. For normal growth, the growth factors and genetic structure of the individual must be healthy. Generally, growth before birth is closely related to the environment in which the baby lives, that is to say, the mother's health, nutrition, and disease. Postnatal growth after intrauterine growth retardation (IUGR) depends on the cause of growth retardation, postnatal nutritional intake, and social environment. IUGR affects 3-10% of pregnancies; 20% of stillborn infants have IUGR. Perinatal mortality rates are 4-8 times higher for growth-retarded infants, and morbidity is present in 50% of surviving infants. There is a strong association between IUGR, CAs, and congenital malformations. It is thought that an abnormal fetal karyotype is responsible for approximately 20% of all IUGR fetuses, and the percentage is substantially higher if growth failure is detected before 26 weeks' gestation (1). Fetuses with chromosome disorders are frequently growth restricted (the common trisomies of chromosomes 13, 18 and 21), and suboptimal growth is also reported for many autosomal abnormalities such as duplications, deletions and ring chromosomes. Furthermore triploidy with unbalanced chromosome translocations and deletions are also common genetic events (2–4). In a recent study, CAs was found in 15,0% of the children with postnatal growth retardation (5). The present study was also aimed to detect various CAs in Turkish population using conventional cytogenetic analysis in children with postnatal growth retardation.

II. Materials and Methods

We present the cases with postnatal growth retardation, developmental delay, and other anomalies with growth retardation; unable to walk, to not speak, unable to sit, incontinence, eating difficulties, handles short, epilepsy, mental retardation, cerebral atrophy, dysmorphism, goiter, turners, and amenorrhea. This is a prospective observational study of patients who were newly diagnosed with PGR and presenting to the Pediatric Clinic, Faculty of Medicine, Çukurova University, The initial diagnosis of PGR as made by the referring clinical pediatric, based on the available clinical details. Turkey. A total of 362 patients (183 males and 179 females), with a median age of 6,3 years (range 1 monthly-18 years), and the sex ratio (male/female) 1,02 were referred to our genetics laboratory. Cytogenetic analysis was performed using a conventional G banding technique. Cytogenetic analysis of blood samples was performed in the Cytogenetics Laboratory, at the Department of Medical Biology and Genetics, Faculty of Medicine, Çukurova University. Karyotypes were documented according to the International System for Cytogenetic Nomenclature (ISCN) recommendations (6). At least 20 metaphases were karyotyped.

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III. Results

Cytogenetics was performed in 362 patients diagnosed with PGR. The male-female ratio was 1,02, and the median age at diagnosis was 6,3 years. The incidence of abnormal karyotype was higher in females (n=20, 69,0%) than that of males (n=9, 31,0%) (The female-male ratio=2,2). Here we report only on the identified cytogenetic anomalies. Out of 362 patients, 29 (8,0%) were found to have abnormal karyotype and the rest of 333 (92,0%) were normal. The CAs were shown in Table 1.

The structural aberrations (translocations, deletions, inversions, isochromosome and fragilities) and numerical aberrations were 5,0% and 3,0%, respectively. Especially, translocations are the most common karyotype (1,4% and 5 cases) among the patients, followed by t(6;11) (q25;q23); t(16;19) (q24;p11); t(5;12) (q34;p12); t(8;7) and robt(14;21). The ratio of inversions in all CAs was 1,1% (4 cases) [inv(14) (q13;q24); inv(9) (p12;q21); inv(9) (p12;q21); inv(9) (p11;q13)]. The deletions were present in approximately 0,6% of children [(del(5p13); del(18) (p13)]. Isochromosomes were present in 2 (0,6%) patients [Xi(Xq); 45, X/46, Xi(Xp)]. The ratio of fragilities were 0,8% of all patients [fra (8p23); fra (5q24); fra(13q32)]. Among numerical CAs, 11 patients (3,0%) had aneuploidies (XX,+21; XY,+21; XX,+21; 46,XX/47, XX+21; +mar; 45,X; 45,X; 45,X; 45,X; 45,X; 45,X/46,XX). (Table 1).

Table 1: Characteristics of the patients and the results of karyotypes

Sex/Age	Karyotypes	No. of cases	Frequency in all cases (%)
	Normal	333	92
	Abnormal	29	8
	General Total	362	
	ABNORMALITIES		
	Structural chromosome abnormalities		
	Deletions		
F/1 F/13	46,XX, del(5p13) 46,XX/ del(18)(p13)		
	Total	2	0,6
	Translocations		
F/2 F/6 M/9 F/13 M/15	46,XX,t(6;11)(q25;q23) 46,XX,t(16;19)(q24.1;p11) 46,XY,t(5;12)(q34;p12) 46,XX,t(8;7)(?) 45,XY,robt(14;21)		
	Total	5	1,4
	Inversions		
F/11 M/7 M/13 M/5	46,XX,inv(14)(q13;q24) 46,XY,inv(9)(p12;q21) 46,XY,inv(9)(p12;q21) 46,XY,inv(9)(p11;q13)		
	Total	4	1,1
	isochromosome		
F/1 F/18	46,Xi(Xq) 45,X/46,Xi(Xp)		
		2	0,6
	Fragilities		
M/3 M/6 M/13	46,XY,fra (8p23),(15%) 46,XY,fra (5q24)(20%) 46,XY,fra(13q32)(17%)		
	Total	3	0,8
	General total	18	5,0
	Numerical chromosome abnormalities		
F/1 M/4 monthly F/1 monthly F/5 monthly F/4	47,XX,+21 47,XY,+21 47,XX,+21 46,XX/47,XX+21 47,XX, +mar 45,X 45,X 45,X		

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F/9 F/14 F/15 F/11 F/7 F/10	45,X 45,X 45,X/46,XX(20%)		
	Total	11	**3,0**
	General total	11	**3,0**

IV. Discussion

CAs are among the common factors that adversely affect both fetal and postnatal growth. A large variety of chromosomal abnormalities are associated with GR. These CAs can affect a variety of autosomes as well as the sex chromosomes. Some of the known genetic associations of intrauterine growth restriction are placental genes, maternal and fetal genes. These genes the causes phenotypic changes, many of which are important for growth and development. In a recent study, the total incidence of cytogenetic anomalies in patients with growth retardation was reported to be 15,0% (5). In the present study, the total frequency of CAs was found at 8,0%. This ratio is important that we found. These CAs were the structural aberrations (translocations, deletions, inversions, isochromosome and fragilities) and numerical aberrations were 5,0% and 3,0%, respectively.

A large variety of CAs is associated with endocrine disorders. These CAs can affect a variety of autosomes as well as the sex chromosomes. Intrauterine growth restriction (IUGR) is defined as fetal growth less than the normal growth potential of a specific infant because of genetic or environmental factors. Genetic causes can contribute to 5-20 % of IUGR, especially for early-onset growth-restricted fetuses, and include various abnormalities, such as CAs, e.g., trisomy 21, 18, 13, and 16 (7,8). A search of the London Dysmorphology Database at http://www.hgmp.mrc.ac.uk/DHMHD/view.html identifies a series of partial chromosome deletions or duplications that are associated with short stature and pituitary abnormalities. These include the following deletions: del(4)pter-p16, del(7)q32-qter, del(13)q22-qter, del(14)q22-q23, del(18)p, del(18)q21-qter, del(22)pter-q11 and duplications: dup(1)q25-q32, dup(9)p, dup(9)pter-q22 and dup(11)q23-qter. Trisomy 16 is known to be a lethal chromosomal abnormality in the nonmosaic state; however, in the presence of placenta mosaicism, trisomy 16 can result in IUGR.

In the present study, we found a higher rate (5,0%) of structural CAs. These ratios of structural CAs were translocations (1,4%), inversions (1,1%), fragilities (0.8%), deletions (0,6%) and isochromosomes (0,6%), respectively. The translocations in all metaphases were found in 5 cases (1,4%). These translocations were found in specific regions of chromosomes t(6;11)(q25;q23); t(16;19)(q24.1;p11); t(5;12)(q34;p12); t(8;7)(?); robt(14;21) (Table 1). Phenotype-specific reciprocal translocations are the most biologically and clinically significant karyotypic changes in PGR. In the present study, the four translocations [t(6;11)(q25;q23); t(16;19)(q24.1;p11); t(5;12)(q34;p12); t(8;7)(?)], we found are new structural formations that are not found in other studies. Therefore, these structural formations may be important new findings in the development of growth retardation.

The most commonly reported manifestations of 16q deletions are severe growth and developmental disorders and anomalies of the craniofacial, visceral, and musculoskeletal systems. We found one translocation instead of adeletion at 16q. This translocation was between t(16;19)(q24.1;p11) chromosome regions in one patient. Here, the break in the 16q24.1 region, the broken part does not disappear, and adherence to the 19 chromosomes may show phenotypic effect similar to the 16q deletion. Thus, only one of these deletions, 16q22.1; q24.1, (9) encompasses our patient's deletion. While not reported in patients with an isolated 16q deletion.

Autosomal abnormalities, including the deletion of chromosomes 4 (Wolf-Hirschhorn syndrome), 5 (Cri du chat syndrome), 13, 18, and ring chromosome structural alterations, have all been associated with IUGR (8, 10). Indeed, we detected a patient with a Cri-du-chat syndrome among our patients. However, del (18)(p13) was found in our patient for the first time. Indeed, the growth hormone deficiency has been described with 18p- and 20p chromosomal deletions (11,12). Therefore, this deletion may be important new findings in the development of growth retardation.

In the present study, pericentric inversionon the chromosome 9 and paracentric inversion on the chromosome 14 were noted in 4 cases [inv(14)(q13;q24); inv(9)(p12;q21); inv(9)(p12;q21); inv(9)(p11;q13)]. Only three cases with pericentric inversion on chromosome 9 were detected. Although this finding is usually considered as a normal variation of chromosome 9. But, paracentric inversion on chromosome 14 was found in our patient for the first time. This inversion may be important new findings in the development of growth retardation.

Abnormalities of sex chromosomes, including complete deletion of X chromosome resulting in Turner's syndrome (45XO) (TS), extra or missing sex chromosomes also have been associated with IUGR. The most common features of TS are pre- and postnatal

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growth retardation and gonadal dysgenesis. Although Growth hormone (GH) secretion has been reported to be normal or paradoxically increased, in most patients with gonadal dysgenesis, pituitary insufficiency has been reported in several patients. These abnormalities in GH secretion in Turner syndrome are probably secondary to the absence of sex hormones during adolescence. Girls with TS have mild growth impairment at birth, grow slowly during infancy and at the onset of childhood and have delayed onset of secondary sex characteristics as well (13). We found that 1,7% of cases had abnormal karyotype who had cytogenetic findings in favor of TS, and one of these was a mosaic form of TS. In addition to numerical abnormalities of chromosome X, two types of structural abnormality of chromosomes including isochromosome of the long and short arms of the X was found in two cases [Xi(Xq) and 45,X/46,Xi(Xp)].

Between numerical chromosomal abnormalities, the most common is Down syndrome (DS) which affect nearly 1:600 live born infants. Delayed development and behavioral problems are often reported in children with DS, and in girls with short stature and growth retardation. Affected individuals' speech and language is develop later, and may be more difficult to understand. Indeed, we found 1.1% (4 cases) DS among our patients, and one of these was a mosaic form of DS. We also found a marker chromosome in one of our patients.

We observed chromosomal fragilities in 0.8% of the patients, and these was a mosaic form. Identification of the basis of instability at FS and the related genes provides an entree to understanding the important aspects of chromosomal instability, which may be a effect that PGR cause. However, the FS is a very interesting subject for the study of clinical disorders, which can lead to the formation of deletions and translocations. At the same time, the characterization of FS has demonstrated that they are associated with genes that relate to tumorigenesis and behavioural disorders (14,15).

V. Conclusion

IUGR is an important health problem of developing countries around the world. There are multiple causes for IUGR including maternal, fetal, placental, and genetic factors. At the same time, postnatal growth also depends on cause of growth retardation, postnatal nutritional intake, and social environment. There is strong association between IUGR, chromosome aberrations and congenital malformations. We showed that a significant proportion of pediatric cases especially unexplained growth retardation had karyotypic abnormality, these are most commonly translocations, Turner syndrome and Down syndrome, respectively. We recommend cytogenetic study for such cases for early diagnosis and management. It is necessary that children with TS and DS be diagnosed as soon as possible so they may achieve the maximum benefit of growth hormone therapy.

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Prostate-Specific Antigen Levels of Prostate Cancer Patients Three Months Following LHRH Agonist Therapy

By Robertus Bebet Prasetyo & Andy

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Abstract- *Background:* Luteinizing hormone-releasing hormone (LHRH) agonist therapy is an androgen suppression therapy aimed to treat prostate cancer by means chemical castration. Despite being frequently used in clinical setting, there is no prior study examining the of LHRH agonist drugs in Indonesia. This study aims to assess the efficacy of LHRH agonists in prostate cancer patients, measured by the reduction of serum prostate specific antigen (PSA) three months following treatment.

Methods: The study used retrospective observational cohort design upon medical record of 83 prostate cancer patients in GatotSoebroto Army Hospital, Jakarta, Indonesia. We analyzed the recorded patients' age, TNM staging, histologic grading, LHRH agonists used in therapy, along with the average baseline PSA level prior and three months following treatment. Paired T-test, Wilcoxon, ANOVA, and Kruskal-Wallis Test were used where appropriate.

Keywords: *LHRH agonist, prostate cancer, prostate-specific antigen, drug efficacy.*

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Robertus Bebet Prasetyo [α] & Andy [σ]

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Results: We found significant change in PSA levels before and three-months following the use of LHRH agonists($p < 0.001$), with the median decreasing from 56.20 (4.24-7,445.00) to 7.08 (0.01-942.00). Significant association was also found between PSA level prior to treatment and the prostate cancer groups according to stages ($p < 0.001$), histological grades ($p = 0.020$), and medications used ($p = 0.010$). However, this study found no significance of these groups in the PSA level reduction three months after therapy.

Conclusion: LHRH agonists were significant in reducing PSA level in any prior prostate cancer staging, histological grading, and medication type.

Keywords: LHRH agonist, prostate cancer, prostate-specific antigen, drug efficacy.

I. Introduction

Prostate cancer is one of the most frequently-occurring type of cancer, reported in a study from 2003 as the sixth most common cancer in the world and the third most common cancer among men.[1] There are 513,000 new cases of prostate cancer was reported globally in the 2000.[2] A data from United States in 2011 shows that this disease was diagnosed in 240 thousand men and was the cause of 33 thousand deaths.[1,3]

As prostate cancer's progression have long since been found to be dependent on hormones, androgen suppression therapy (AST) is incorporated into the standard treatment of prostate cancer.[4] Historically, AST was commonly accomplished by means of surgical procedure or estrogen therapy. Advance in AST allows pharmacologic castration using luteinizing hormone-releasing hormone (LHRH) agonist drugs as they offer wider use. LHRH agonists therapy was found to lower the number the hospital visits required, medical bill for the treatment, along with mental and physical burden that may occur from the drug injection.[5] Although current studies show that the two most common LHRH agonist used in medical setting, Leuprorelin and Goserelin, have relatively equal efficacy, Leuprorelin are comparably more expensive than the latter.

Although LHRH agonists are commonly used in the treatment regime of prostate cancer, there has yet been any study regarding the drug's influence on lowering the level of prostate-specific antigen (PSA), a prostate cancer biomarker, in Indonesia. Thus, this study aims to assess the efficacy of LHRH agonists in treating prostate cancer patients through analyzing the change of PSA levels three months following the therapy.

II. Methods

This is an observational study using retrospective cohort design that was conducted in the Urology Polyclinic of GatotSoebroto Army Hospital, Jakarta, from January of 2014 to October of 2018. The study subjects were 127 male patients older than 40 years of age who were previously diagnosed with prostate cancer and treated with LHRH agonists within the period of research. Patients that had not undergo laboratory testing for PSA prior to the treatment, developed a castrate-resistant prostate cancer, or failed to attend the follow-up care in polyclinic within three months are excluded from the study. The subjects were sampled consecutively, in which patients were selected in order of outpatient scheduling until the appropriate sample size was reached.

Data were collected from the subjects' medical record. Of the extracted data were the patient's age, cancer staging according to European Society for Medical Oncology (ESMO) classification, histological grading, treatment received, along with PSA levels

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before and after treatment. Information regarding the treatment collected for in this study were the LHRH medication type used and other therapies done for the patient.

All data were analyzed using SPSS version 23. Descriptive statistics were used to summarize the demographic characteristics of subjects according to age, TNM stage, and histologic grade. This statistics were also used to describe the usage of LHRH agonists along with average baseline and post-therapy PSA levels. Statistical analysis was used to observe the changes of PSA level three months following therapy. Paired-T test analysis was conducted with dispersed data, whereas Wilcoxon test was done for under dispersed data. Another statistical analysis used in this study is ANOVA and Kruskal Wallis, for dispersed and under dispersed data respectively, to observe the difference of PSA-lowering efficacy in different medication types, cancer stages, and histologic grades.

III. Results

From January of 2014 to October of 2018, there were 83 prostate cancer patients that underwent LHRH agonist therapy with the median age of 70 years. The youngest of the subjects was 51 years old, whereas the oldest was 80 years old. The median of baseline PSA level was 5.40 ng/ml, with maximum and minimum value 4.24 and 7,445.00 ng/ml, respectively. The demographic characteristic of this study is further described in Table 1.

Wilcoxon analysis shows significant difference between circulating PSA level before and three months following prostate cancer treatment with LHRH agonists ($p < 0.001$), with median value of decrease from 54.00 (4.24-7,445.00) to 7.08 (0.01-942.00). Significant difference was also found using Kruskal-Wallis analysis upon baseline PSA levels between prostate cancer stages, histologic grades, and LHRH medication used (stage, $p < 0.001$; histologic grade, $p = 0.020$; LHRH medication, $p = 0.009$). However, there were no significant distinction of PSA levels three months following therapy between there groups. (stage, $p = 0.135$; histologic grade, $p = 0.067$; LHRH medication, $p = 0.139$) (Table 2)

Table 1: Patients' Characteristic

	Total (n = 83)	Precentage (%)
Stage		
T1-T2a, N0M0	23	27.7
• IIA	• 6	• 7.2
• IIC	• 2	• 2.4
• IIIA	• 5	• 6.0
• IIIC	• 10	• 12.0
T2bN0M0	7	8.4
• IIA	• 1	• 1.2
• IIIA	• 4	• 4.8
• IIIC	• 2	• 2.4
T2c-T4 orN1 orM1	53	63.9
• IVA	• 2	• 2.4
• IVB	• 51	• 61.4
Histologic grading		
1	10	12.0
2	4	48
3	21	25.3
4	20	24.1
5	28	33.7
LHRH Medication		
Goserelin	47	56.6
Leuprorelin	28	33.7
Goserelin and Leuprorelin	8	9.6

Table 2: Changes in PSA levels according to cancer stage, histologic grade, and LHRH medication used in treatment

	PSA prior to treatment	PSA 3 months following treatment
Stage		
T1-T2a, N0M0	13.10 (4.24-134.00)	6.70 (0.44-80.80)
T2bN0M0	26.00 (14.00-64.54)	0.30 (0.01-22.40)
T2c-T4 or N1 or M1	80.00 (4.70-7,445.00)	10.23 (0.07-647.00)
P-value	< 0.001	0.135

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Histologic grade 1 2 3 4 5	 20.00 (9.40-115.79) 84.12 (4.24-236.70) 48.60 (7.89-7,445.00) 108.25 (4.70-889.00) 60.37 (11.68-596.64)	 3.30 (0.01-80.80) 9.65 (1.88-392.60) 3.30 (0.07-647.00) 6.20 (0.10-76.90) 13.27 (0.40-147.00)
P-value	0.020	0.067
LHRH Medication Goserelin Leuprorelin Both	 68.00 (4.24-596.64) 40.00 (9.40-7,445.00) 889.00 (26.00-889.00)	 9.00 (0.01-392.60) 13.10 (0.07-647.00) 6.20 (0.30-6.20)
P-value	0.009	0.139

IV. Discussion

In this study, there were 83 out of 172 prostate cancer patients administered with LHRH agonists as androgen suppression therapy. The median age of the subjects was 70 years, ranging from 51 to 80 years. These result are supported by a study conducted in 2013 to 2015 in Prof. Dr. R. D. Kandou Central General Hospital in Manado, where it was found the age profile of prostate cancer patients ranges from 51 to 90 years, with 61-70 years as the largest age group.[6] A majority of the patients that received LHRH agonists were also found with high-risk prostate cancer, with 63.9% in the staging of T2c-T4 or N1 or M1 (61.4% in the IVB prognostic group) and 33.7% with the histologic grade of 5.

The 2016 global treatment pattern of prostate cancer have shown androgen-suppression therapy as the treatment of choice of men with late stage prostate cancer. This treatment was chosen with the patient's disease status as the primary driver in 29% of the cases, while patient's age was deemed the most important factor in only 7% of the case.[7] This pattern supports the findings of this study, as the major age group of patients sampled resembles the general age profile of prostate cancer patients, while in contrast, the majority were in pathologically advanced stage of disease. Androgen suppression therapy are indicated after the failure of definitive therapy and local salvage, thus most patients received the treatment at a later progression.[8]

LHRH agonist therapy were efficacious in suppressing PSA level during three-month follow-up. Current evidence have shown that LHRH monotherapyis an equal alternative of surgical castration in terms of efficacy and adverse effects. However, patients usually experience a transient flare-up of prostate cancer and PSA level. In theory, LHRH agonists act by modulating the action of hypothalamus and overtaking the control imposed by gonadotropin-releasing hormone (GnRH). Initially, the secretion of luteinizing hormone (LH), follicle stimulating hormone (FSH), and testosterone will surge, leading to transient surge of PSA. Then, after 2-4 weeks of treatment, this drug will inhibit the expression of LHRH in pituitary cells, thus restricting the secretion of gonadal steroids by desensitization. The inhibition of sex steroid secretion will interfere with tumor's mitogenic stimuli, eventually leading to the decline of circulating PSA.[9-10]

The median value of PSA 3 months after LHRH agonists treatment found in this study was 7,08 (0,01-942,00). Similarly, Ishizuka showed that both 1-month and 3-months depot of LHRH agonist drugs caused a drop of PSA levels from baseline since 4-weeks after treatment, and gradually decreased until most of the samples reached <4.0 ng/mL of PSA after week-12.[5]

PSA and its derivatives are well known as an indicator of prostate cancer progression for the use of screening and post-therapy observation.[11-2] Prior to LHRH agonists therapy, PSA levels between prostate cancer stages in this study were largely variable. However, 3-months after therapy, no significance difference was found. The same phenomenon was observed with PSA levels between histologic grades prior and after therapy. This can be attributed to the initial PSA levels before therapy, as Choueiri also observed invariable PSA levels after reaching nadir with the time of 6 months. His study also reported that prostate cancer patients with higher PSA levels (median of 146) who received AST have significantly faster rate of PSA decline (>52 ng/mL/year) and higher PSA nadir. Crucially, fasted PSA decline rate are associated with higher mortality.[13]Another study has reported that PSA level can predict the outcome of prostate cancer LHRH medication, as a level below 0,3 ng/ml shown better response toward LHRH agonist therapy.[14]

Neither Goserelin, Leuprorelin, or the use of both drugs have any significance towards the outcome of LHRH therapy, as the PSA levels 3 months following the treatment was insignificant. This finding is supported by other studies that also found no difference between LHRH medication types and the response of AST.[15-6]

The limitations of this study are due to the nature of the data collected, as the accuracy depends on correct documentation in the medical records. Also, androgen suppression therapy is given for patients in late stage or failed definitive therapy. Thus, each patients have a unique clinical scenario and treatment plan prior to study. These variables, coupled with small samples, might interfere with our result. However, PSA

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level is reduce significantly in any prostate cancer patients following 3 months of LHRH agonist therapy.

V. Conclusion

This study shows that within three months following therapy, LHRH agonists were significant in reducing PSA level in any prior cancer status (stage, histologic grade, and medication). However, neither cancer stage, histology grade, nor medication type were significantly associated with the decline of PSA level prior and after therapy. Due to the limitation of the retrospective nature used in this study, the author recommends further research of LHRH agonists and other yet-to-be approved AST drugs in Indonesia, such as GnRH antagonist, using larger and better-controlled cohort.

Conflict of interest
There are no conflicts of interest

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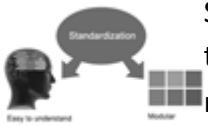


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- Fellow can also join as paid peer reviewer and earn 15% remuneration of author charges and can also get an opportunity to join as member of the Editorial Board of Global Journals Incorporation (USA)
- • This individual has learned the basic methods of applying those concepts and techniques to common challenging situations. This individual has further demonstrated an in–depth understanding of the application of suitable techniques to a particular area of research practice.

Note :

"

- In future, if the board feels the necessity to change any board member, the same can be done with the consent of the chairperson along with anyone board member without our approval.
- In case, the chairperson needs to be replaced then consent of 2/3rd board members are required and they are also required to jointly pass the resolution copy of which should be sent to us. In such case, it will be compulsory to obtain our approval before replacement.
- In case of "Difference of Opinion [if any]" among the Board members, our decision will be final and binding to everyone.

"

Preferred Author Guidelines

We accept the manuscript submissions in any standard (generic) format.

We typeset manuscripts using advanced typesetting tools like Adobe In Design, CorelDraw, TeXnicCenter, and TeXStudio. We usually recommend authors submit their research using any standard format they are comfortable with, and let Global Journals do the rest.

Alternatively, you can download our basic template from https://globaljournals.org/Template

Authors should submit their complete paper/article, including text illustrations, graphics, conclusions, artwork, and tables. Authors who are not able to submit manuscript using the form above can email the manuscript department at submit@globaljournals.org or get in touch with chiefeditor@globaljournals.org if they wish to send the abstract before submission.

Before and during Submission

Authors must ensure the information provided during the submission of a paper is authentic. Please go through the following checklist before submitting:

1. Authors must go through the complete author guideline and understand and *agree to Global Journals' ethics and code of conduct,* along with author responsibilities.
2. Authors must accept the privacy policy, terms, and conditions of Global Journals.
3. Ensure corresponding author's email address and postal address are accurate and reachable.
4. Manuscript to be submitted must include keywords, an abstract, a paper title, co-author(s') names and details (email address, name, phone number, and institution), figures and illustrations in vector format including appropriate captions, tables, including titles and footnotes, a conclusion, results, acknowledgments and references.
5. Authors should submit paper in a ZIP archive if any supplementary files are required along with the paper.
6. Proper permissions must be acquired for the use of any copyrighted material.
7. Manuscript submitted *must not have been submitted or published elsewhere* and all authors must be aware of the submission.

Declaration of Conflicts of Interest

It is required for authors to declare all financial, institutional, and personal relationships with other individuals and organizations that could influence (bias) their research.

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- Ideas
- Findings
- Writings
- Diagrams
- Graphs
- Illustrations
- Lectures

- Printed material
- Graphic representations
- Computer programs
- Electronic material
- Any other original work

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2. Drafting the paper and revising it critically regarding important academic content.
3. Final approval of the version of the paper to be published.

Changes in Authorship

The corresponding author should mention the name and complete details of all co-authors during submission and in manuscript. We support addition, rearrangement, manipulation, and deletions in authors list till the early view publication of the journal. We expect that corresponding author will notify all co-authors of submission. We follow COPE guidelines for changes in authorship.

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Unless specified in the notification, the Editorial Board's decision on publication of the paper is final and cannot be appealed before making the major change in the manuscript.

Acknowledgments

Contributors to the research other than authors credited should be mentioned in Acknowledgments. The source of funding for the research can be included. Suppliers of resources may be mentioned along with their addresses.

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Authors can submit papers and articles in an acceptable file format: MS Word (doc, docx), LaTeX (.tex, .zip or .rar including all of your files), Adobe PDF (.pdf), rich text format (.rtf), simple text document (.txt), Open Document Text (.odt), and Apple Pages (.pages). Our professional layout editors will format the entire paper according to our official guidelines. This is one of the highlights of publishing with Global Journals—authors should not be concerned about the formatting of their paper. Global Journals accepts articles and manuscripts in every major language, be it Spanish, Chinese, Japanese, Portuguese, Russian, French, German, Dutch, Italian, Greek, or any other national language, but the title, subtitle, and abstract should be in English. This will facilitate indexing and the pre-peer review process.

The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.

Manuscript Style Instruction (Optional)

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11'", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

Structure and Format of Manuscript

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

a) A title which should be relevant to the theme of the paper.
b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
d) An introduction, giving fundamental background objectives.
e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
f) Results which should be presented concisely by well-designed tables and figures.
g) Suitable statistical data should also be given.
h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
j) There should be brief acknowledgments.
k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.



Format Structure

It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

All manuscripts submitted to Global Journals should include:

Title

The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

Author details

The full postal address of any related author(s) must be specified.

Abstract

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Keywords

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, “What words would a source have to include to be truly valuable in a research paper?” Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

Numerical Methods

Numerical methods used should be transparent and, where appropriate, supported by references.

Abbreviations

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

Formulas and equations

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

Tables, Figures, and Figure Legends

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.

Figures

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.

Preparation of Eletronic Figures for Publication

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.

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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.



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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.



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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.



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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.

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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
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References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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