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Concomitant Abdominal Trauma

Optimization of Treatment Methods

Highlights

Use of Laser Treatment Methods

Socio-Demographic and Clinical Profile

Discovering Thoughts, Inventing Future

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Contents of the Issue

i. Copyright Notice
ii. Editorial Board Members
iii. Chief Author and Dean
iv. Contents of the Issue

1. Optimization of Treatment Methods for Purulent-Destructive Soft Tissue Diseases through the use of Laser Treatment Methods. *1-10*
2. Smell Abnormalities Caused by Sars-Cov2 Infection: A Literary Review. *11*
3. Problems of Early Diagnosis of the Abdominal Cavity with Concomitant Abdominal Trauma in Children. *13-18*
4. Socio-Demographic and Clinical Profile of Lip, Oral Cavity and Pharyngeal Cancer in an Urban Cancer Centre in Coimbatore. *19-24*

v. Fellows
vi. Auxiliary Memberships
vii. Preferred Author Guidelines
viii. Index

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Optimization of Treatment Methods for Purulent-Destructive Soft Tissue Diseases through the use of Laser Treatment Methods

By Teshaev Oktyabr Rukhullaevich, Muradov Alijon Salimovich & Mavlyanov Olimboy Razzokovich

Abstarct- Purpose: Optimization of methods for the treatment of purulent-destructive diseases through the complex application of photodynamic therapy (PDT) and CO_2 laser.

Materials and Methods: 360 patients with purulent-destructive soft tissue disease were examined and treated. Depending on the treatment carried out, the patients were conditionally divided into 3 groups: the 1st (control group) included 118 patients who underwent conventional traditional methods of treatment; in the 2nd group (main group I) there were 120 patients who, in combination with traditional methods of treatment, used PDT with a photosensitizer (PS) 0.05% methylene blue buffer solution (MB); and the 3rd group (main group II) included 122 patients where PDT was used in combination with traditional methods of treatment (0.05% methylene blue buffer solution was used as PS) and a CO_2 laser.

Keywords: photodynamic therapy, photosensitizer, methylene blue, CO_2 laser, laser surgery, microbe, planimetry.

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Optimization of Treatment Methods for Purulent-Destructive Soft Tissue Diseases through the use of Laser Treatment Methods

Teshaev Oktyabr Rukhullaevich [α], Muradov Alijon Salimovich [σ] & Mavlyanov Olimboy Razzokovich [ρ]

Abstract- Purpose: Optimization of methods for the treatment of purulent-destructive diseases through the complex application of photodynamic therapy (PDT) and CO_2 laser.

Materials and Methods: 360 patients with purulent-destructive soft tissue disease were examined and treated. Depending on the treatment carried out, the patients were conditionally divided into 3 groups: the 1st (control group) included 118 patients who underwent conventional traditional methods of treatment; in the 2nd group (main group I) there were 120 patients who, in combination with traditional methods of treatment, used PDT with a photosensitizer (PS) 0.05% methylene blue buffer solution (MB); and the 3rd group (main group II) included 122 patients where PDT was used in combination with traditional methods of treatment (0.05% methylene blue buffer solution was used as PS) and a CO_2 laser. Clinical, microbiological, morphological and planimetric methods have been investigated to assess the effectiveness of the method.

Results: Photodynamic therapy with a light emitter ALT-Vostok-03 is a rather effective non-invasive and sparing method of treating purulent wounds and serves as a rationale for the application of the method of photodynamic therapy in clinical practice for the treatment of local acute purulent-inflammatory processes in combination with a CO_2 laser and traditional methods of treatment. In patients of the main group, the normalization of temperature and heart rate was observed at 3.0 ± 0.5 days, a decrease in LII indices to the normal level was observed at 7.0 ± 0.5 days after the treatment. Analysis of the dynamics of clinical manifestations showed that the treatment of purulent wounds using PDT with a photosensitizer of the blizzard blue leads to a rapid decrease in perifocal inflammatory manifestations. Hyperemia of the skin around purulent wounds and a decrease in perifocal inflammation persisted for 3.5 ± 0.5 days, a decrease in local edema was noted for 2.0 ± 0.5 days. The average length of hospital stays for patients in the main group averaged 5.0 ± 2.5 bed-days. After 3-5 sessions of PDT with a photosensitizer MS in the main group, the microbial contamination decreased to a critical level, and after 6-8 sessions, no microbial growth was observed.

Conclusion: The combined use of PDT and CO_2 laser is the most effective, in comparison with traditional methods of treatment, which leads to earlier cleansing from pus, active formation of granulation tissue and shortening the time of complete epithelialization of the wound surface.

Keywords: photodynamic therapy, photosensitizer, methylene blue, CO_2 laser, laser surgery, microbe, planimetry.

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I. Introduction

Despite the achievements of recent years in the field of microbiology, immunology, intensive work on the development and implementation of new antibacterial drugs, improvement of surgical techniques, the problem of treating purulent-inflammatory diseases of soft tissues does not lose its relevance [4,8,32,36]. This problem is compounded by the growing number of pathogenic microorganisms resistant to both antibiotics and some antiseptics [25,31].

In the general structure of surgical diseases, surgical infection is observed in 35 - 45% of patients. At the same time, up to 70-80% of these patients are admitted to hospitals for urgent indications. In the structure of postoperative complications, surgical infection ranges from 32 to 75% [1, 2, 23, 13, 19, 9, 37, 34, 35, 43]. These impressive figures convincingly indicate the relevance and unsolved problem of purulent infection in surgery, which is a very serious medical, social and economic problem that remains relevant today [29].

Despite the availability of various methods of treatment used in purulent surgery, it does not reduce the number of patients with surgical infection, which contributed to the introduction of a wide range of physical and physicochemical methods of local treatment of purulent soft tissue diseases [1, 14, 20, 40].

One of the promising areas of modern medicine in solving this problem is the use of laser treatment methods. Photodynamic therapy (PDT) is a unique medical technology: highly effective, sparing, organ-preserving, providing good cosmetic and functional results [26]. PDT is a relatively new method of treatment based on the use of drugs - photosensitizers (substances that are sensitive to light) and laser radiation with a certain wavelength corresponding to the absorption peak of the photosensitizer [17,24].

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II. Research Purpose

Improvement of the results of treatment of patients with purulent-destructive diseases of soft tissues with the help of local complex application of PDT and CO_2 laser.

III. Materials and Methods

The study is based on the results of a comprehensive examination and treatment of 360 patients with purulent wounds of soft tissues who were treated in the department of purulent surgery of the 1-city clinical hospital on the basis of the Department of Surgical Diseases of the TMA from 2014 to 2019. Depending on the treatment carried out, the patients were conditionally divided into 3 groups: the 1st (control group) included 118 patients who underwent conventional traditional methods of treatment; in the 2nd group (main group I) there were 120 patients who, in combination with traditional methods of treatment, used PDT with a photosensitizer (PS) 0.05% buffer solution of methylene blue (MS); and the 3rd group (main group II) included 122 patients where PDT was used in combination with traditional methods of treatment (0.05% methylene blue buffer solution was used as PS) and a CO2 laser. According to our data, the distribution of patients by age and sex is presented in table 1. Among the examined patients, there were 189 (52.5%) women, 171 (47.5%) men, the age of the patients varied from 18 to 82 years. The main contingent of patients was of working age from 18 to 60 years - 277 patients (63%).

Table 1: Distribution of patients depending on age and gender

Age of the patients	Control group		Main group I		Main group II	
	Men	Women	Men	Women	Men	Women
From 18 to 44 years old	18	23	19	26	21	20
From 45 to 59 years old	15	17	16	18	19	15
From 60 to 74 years old	11	14	15	11	14	17
75 and elder	9	11	5	10	9	7
Total (%)	53(45%)	65(55%)	55(46%)	65(54%)	63(51,6%)	59(48,3)

According to clinical entities in patients, erysipelas prevailed in 63 patients (17.5%), carbuncle in 53 patients (14.8%), infected wounds in 48 patients (13.4%), phlegmon in 43 patients (11.9%) and postoperative suppuration of wounds of various localization in 34 patients (9.5%).

Table 2: Clinical entities of examined patients

No.	Nosology	Control group	Main group I	Main group II	Total
1.	Erysipelas	23	29	11	63(17,5%)
2.	Carbuncle	17	11	25	53(14,8%)
3.	Infected wound	19	22	7	48(13,4%)
4.	Phlegmon	12	13	18	43(11,9%)
5.	Postoperative wound suppuration	10	9	15	34(9,5%)
6.	Abscessed furuncle	7	8	13	28(7,8%)
7.	Soft tissue abscess	8	4	10	22(6,1%)
8.	Postinjective abscess	7	8	6	21(5,8%)
9.	Acute suppurative mastitis	5	6	9	20(5,5%)
10.	Suppurative hematoma	7	5	4	16(4,4%)
11.	Other nosology	3	5	4	12(3,3%)
Total		118	120	122	360(100%)

Analyzing table 3 on the location of a purulent wound, it can be noted that most often purulent wounds were localized in the body area 98 (27.3%) and lower limbs -73 (20.3%).

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Table 3: Distribution of patients according to the location of the purulent wound

№	Body area	Control group	Main group I	Main group II	Total (abc and %)
1.	Body	34	28	36	98(27,3%)
2.	Lower limbs	21	33	19	73(20,3%)
3.	Neck	20	15	23	58(16,1%)
	Stomach	16	19	21	56(15,5%)
4.	Buttocks	14	15	16	45(12,5%)
5.	Upper limbs	13	10	7	30(8,3%)
	Total	118	120	122	360(100%)

The time from the onset of the disease to treatment and hospitalization in the hospital averaged 7.2 ± 3.5 days.

Table 4: Distribution of patients in the main and control groups depending on the nature of concomitant diseases

No.	Concomitant diseases	Control group (abc and %)	Main group I (abc and %)	Main group II (abc and %)	Total (abc and %)
1.	Hypertensive disease	26(22,0%)	29(24,1%)	22(18,0%)	77(21,4%)
2.	Coronary disease	18(15,2%)	14(11,7%)	19(15,5%)	51(14,2%)
3.	Diabetes mellitus	12(10,4%)	15(12,5%)	20(16,4%)	47(13,0%)
4.	Varicose of the lower extremities and CVI	13(11,0%)	19(16,0%)	11(9,0%)	43(12,0%)
5.	Respiratory diseases	11(9,3%)	7(5,8%)	8 (6,6%)	26(7,2%)
6.	Postinfarction cardiosclerosis	5(4,2%)	7(5,8%)	11 (9,0%)	23(6,4%)
7.	Diseases of the genitourinary system	5(4,2%)	7(5,8%)	9(7,4%)	21(5,8%)
8.	Arthropathy	9(7,6%)	7(5,8%)	5(4,1%)	21(5,8%)
9.	There was no concomitant pathology	19(16,1%)	15(12,5%)	17(14,0%)	51(14,2%)
		118	120	122	360(100%)

The analysis of concomitant diseases in the comparative groups shows that in the control group in 83.9%, in the main group I in 87.5%, and in the main group II in 86.0% of patients, one or more concomitant diseases were revealed. At the same time, arterial hypertension (21.4%), ischemic heart disease (14.2%), diabetes mellitus (13.0%) and varicose veins of the lower extremities with signs of varying severity of CVI (12.0%) prevailed.

Device characteristics

For photodynamic therapy, an ALT-Vostok model 03 light emitter was used, corresponding to the technical specifications TSh 64-15302652-002: 2010, Manufacturer LLC “NAF”, Uzbekistan.

With the following main technical characteristics:

1) Radiation range 660-670nm with a power density of 200 mW / cm^2;
2) Exit area of the emitting terminal 4 cm^2.

The distance from the end of the radiator to the wound surface was 2-5 cm in the absence of thermal discomfort in the patient. The total irradiation time depended on the area of the wound surface and ranged from 15 to 30 minutes.

For the session of the CO2 laser, the apparatus "JZ-3A" was used. Laser wavelength: 10.6. Output Power: 1 ~ 15w. Exit mode: Focus, defocus.

In all studied groups, after the start of treatment, we studied general clinical parameters, morphology, microbiology and planimetry of purulent wounds in dynamics. After opening the abscess, all patients had bandaging on the next day after the operation, where the condition of the wound was assessed - resolution of hyperemia, swelling, pain and infiltration of the walls, the nature and amount of discharge from a purulent wound, the presence of non-viable, necrotic tissues and detritus was determined, as well as the timing of the appearance granulation and the beginning of epithelialization. The prints were taken from the walls of wounds for 3,7,10 days for cytological studies, as well as for dynamic control of changes in the microbial flora and its sensitivity to antibiotics.

After the surgical treatment of purulent foci, the dynamics of the course of the wound process in patients of the control and main groups were different, depending on the treatment.

In patients of the control group who received traditional treatment, temperature normalized on day 4.0 ± 0.5, heart rate normalized on day 4.5 ± 0.5, and a

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decrease in leucocyte index of intoxication - on day 8.5 ± 0.5 after treatment. A decrease in perifocal edema in the area of purulent wounds was observed in patients for 4.5 ± 0.5 days. Hyperemia of the skin around the purulent wounds persisted for 5.0 ± 0.3 days, and infiltration of the edges and walls of the wounds - 8.5 ± 0.5 days. Table 7.

In the main group I, temperature normalized on the 3.0 ± 0.8th days, the heart rate decreased to normal values by 3.5 ± 0.7 days, a decrease in leucocyte index of intoxication to the normal level was observed on the 8.0 ± 0.5th days after carrying out medical measures. Analysis of the dynamics of clinical manifestations showed that the treatment of purulent wounds using photodynamic therapy with a photosensitizer blizzard blue leads to a rapid decrease in perifocal inflammatory manifestations. Hyperemia of the skin around purulent wounds and a decrease in perifocal inflammation persisted for 4.0 ± 0.5 days, and infiltration of the edges and walls of wounds — 6.5 ± 0.5 days. Table 7.

In the main group II, temperature normalized on the 3.0 ± 0.5th days, the heart rate decreased to normal values by 3.0 ± 0.5 days, and a decrease in leucocyte index of intoxication to the normal level was observed on days 7.0 ± 0.5 after therapeutic measures. Analysis of the dynamics of clinical manifestations showed that the treatment of purulent wounds using photodynamic therapy with a photosensitizer blizzard blue leads to a rapid decrease in perifocal inflammatory manifestations. Hyperemia of the skin around purulent wounds and a decrease in perifocal inflammation persisted for 3.5 ± 0.5 days, and infiltration of the edges and walls of wounds — 5.5 ± 0.5 days. Table 8.

Table 8: Comparative characteristics of the main clinical indicators of the studied groups in dynamics

Groups / Indicators	Temperature normalization (days)	Heart rate normalization (days)	Normalization of leucocyte index of intoxication (days)	Decrease in perfocal inflammation (days)	Reduction of infiltration of the edges and walls of wounds (day)
Control group	4,0±0,5	4,5±0,5	8,5±0,5	4,5±0,5	8,5±0,5
Main group I	3,0±0,8	3,5±0,7	8,0±0,5	4,0±0,5	6,5±0,5
Main group II	3,0±0,5	3,0±0,5	7,0±0,5	3,5±0,5	5,5±0,5

Пример: Больной С.С. 1954 г.р. ИБ №1650. Поступил с диагнозом: Карбункул шеи. Жалобы на боли, отечность, покраснение в области задней поверхности шеи, повышение температуры тела, а также слабость. Со слов болеет в течение 10 дней. Занимался самолечением-без эффекта. Анализах крови: Hb-132г/л, WBC-16x109/л, Ht–42,5%, СОЭ-10 мм/ч, АСТ – 0,38мкмоль, АЛТ – 0,29 мкмол. Локальном осмотре по задней поверхности шеи имеется участок покраснение размером: 10,0x10,0 см при пальпации резко болезненно. 29.01.2016 г произведено операция "выскритые гнойника, некроэктомия". После операции пациенту проведено 3 сеанса ФДТ (ФС 0,05% раствор метиленовый синий) с помощью фотодинамической устройства АЛТ Восток и CO_2-лазера (2 сеанса). Послеоперационный период прошел хорошо. Операционная рана очистилась от гнойного налета на 3 сутки лечение, появление грануляции через 4-5 дней и эпителизации через 5-6 дней по краям раны. Пациент выписан из стационара в удовлетворительном состоянии на 5-е сутки после операции.

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Pic 1: Carbuncle of the posterior surface of the neck after dissection. Fibrinous purulent exudate on the day of the wound.



Pic 2: The state of the wound after the 1st session of the CO_2 laser

Pic 3: The state of the wound after the 3rd session of the CO_2 laser (5th day, after the opened abscess). There is no Fibrinous purulent exudate, there are signs of granulation on the wound.



Observation of the course of purulent wounds in dynamics showed that the cleansing of wounds from purulent-necrotic masses during the traditional treatment occurred on the days 7.0 ± 0.5 (on the 4.5 ± 0.5th day in the main group I and 3,8±0,5 in the main group II), the appearance of granulations was noted on 7.5 ± 0.7th days (on the 5.0 ± 0.6th day in the main group I and 4,0±0,5 in the main group II), and marginal epithelization was detected on 8.0 ± 0.7th days (on the 6, 5 ± 0.5th day in the main group I and 5,5±0,5 in the main group II) after surgical treatment of a purulent focus - table 8. The average length of hospital stay for patients in the control group averaged 9.5 ± 3.5 bed-days (7.5 ± 3.0 in the main group I and 6,0±2,5 in the main group II) - after a PDT session and a CO_2 laser, the terms decreased in the main group II.

Table 9: Comparative characteristics of the wound process depending on the treatment performed in dynamics

Groups	Medium terms (days)		
	Wound cleaning	Appearance of granulation	Onset of marginal epithelialization
Control group	7,0±0,5	7,5±0,6	8,0±0,7
Main group I	4,5±0,5	5,0±0,6	6,5±0,5
Main group II	3,8±0,5	4,0±0,6	5,5±0,5

The staged planimetric studies carried out showed that in the main groups of patients, where PDT and CO_2 laser were used for treatment, the area of purulent wounds decreased faster than in the control group - Table 14. Thus, in patients of main group II, the area of purulent wounds decreased by 10th days by 72.7%, in patients in the main group this indicator is 69.5%, while with traditional treatment the area of purulent wounds decreased by 59.9% ($p < 0.05$).

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Table 14: Comparative characteristics of planimetric indicators of purulent wounds in dynamics in the studied groups

Group of patients	Wound area (cm^2 and %)			
	1st day	3 rd day	7 th day	10 th day
Control group	147±6,0 cm^2 (100%)	133±5,0 (90,4%)	75±3,0 (51%)	59±5,5 (40,1%)
Main group I	141±8,0 cm^2 (100%)	119±5,0 (84,3%)	60±4,0 (42,5%)	43±2,5 (30,5%)
Main group II	143±5,0 cm^2 (100%)	111±5,0 (77,6%)	48±4,0 (33,5%)	39±2,0 (27,3%)

Studying the planimetric parameters obtained, we can conclude that the average daily rate of decrease in the area of purulent wounds in the control group was -5.99% in 10 days, in the main group I, with the combined use of photodynamic therapy with photosensitizer methylene blue, the rate of shortening of the wound surface was -6.9 %, and in the main group II, with the combined use of photodynamic therapy and a CO2 laser, the rate of shortening of the wound surface was higher and amounted to –7.2%.

In the course of monitoring the patients of the main group during the year, none of the patients showed the formation of keloid or gross hypertrophic scars. The scar tissue did not protrude above the skin level, was smooth, did not deform the skin and subcutaneous tissue, and was not adhered to the underlying tissues.

The study of the microbiology of purulent wounds shows that those obtained from patients of three groups were contaminated with microorganisms, i.e. growth was observed in all samples (100%). From 105 examined patients, 124 strains of microbes were isolated, of which 86 (82%) were monocultures, 19 (18%) strains were found in an association of two types of microbes. In 9 (47.4%) cases, two types of staphylococci were sown; in 6 (31.5%) cultures hemolytic streptococci were associated with staphylococci and in 1 (5.3%) - E. coli. In one case, Candida fungi were excreted with E. coli, Proteus, and streptococci. The dominant pathogens of HVD were gram-positive microorganisms - 124/112 (91.4%), among which the leading position was occupied by staphylococci 83%, represented, in most of the crops, by St. aureus (92%). Representatives of the gram-negative flora were: Proteusspp. (3 / 2.5%), Ps. aeruginosae (7/6%), E. coli (2 / 1.5%).

A comparative analysis of the data obtained from the three examined groups of patients showed that all the methods of treatment used had an effect to one degree or another on the causative agent of the purulent-inflammatory process. The differences between these groups were manifested in the timing of the elimination of the pathogen (Figure 23).

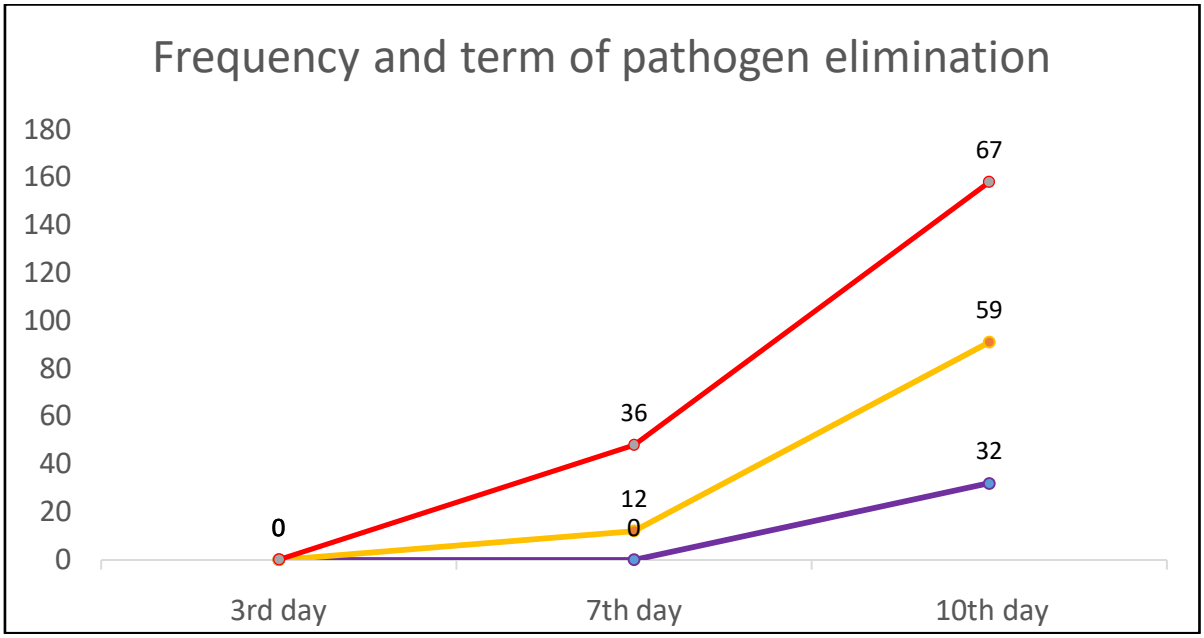


Fig. 23: Frequency and term of pathogen elimination in comparative groups

As shown in the diagram, the change in the drillability of microbes from purulent foci occurs by the seventh day. In 32% of patients in the control group who received traditional treatment, there was no growth of

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the pathogen in the seeding on the 10th day of the study. In contrast, in group I of patients who received traditional treatment in combination with PDT, no growth of microbes was found. On the seventh day of examination in 12% of patients, and in the last study - in 59% of patients, which is 1.8 times more than in the control group. The best results were achieved in group II of the surveyed who received complex therapy - traditional treatment + PDT + CO2 laser: elimination of the pathogen was observed on the seventh day in 36% of patients, which is 3 times higher than the indicators of group I patients. On the tenth day, the absence of growth was already in 67% of patients in this group, which is also higher than those of group I by 1.1 times, and in the control group of patients by 2 times. The data obtained allow us to conclude that the proposed method of treatment is highly effective.

Morphological studies have shown that, before surgical treatment, during histological studies, the walls and bottom of the wound are represented by destructive necrotic tissues, abundantly infiltrated by polymorphonuclear leukocytes, the tissues are edematous having venous and capillary plethora, stasis, perivascular diapedetic and focal hemorrhages.

The study of the dynamics of acute purulent-inflammatory diseases of soft tissues after traditional treatment showed that on the 3rd day, purulent-destructive and necrobiotic changes with infiltration of neutrophilic leukocytes prevailed in almost all types of purulent diseases. By the 7th day of traditional treatment, infiltration of neutrophilic leukocytes is more often observed, the number of abscesses and foci of necrosis increases, and the destruction of specific tissue structures is observed. By the 10th day of the examination, the processes of edema and destruction in the purulent-inflamed tissue calmed down somewhat, certain boundaries appeared in the areas of neutrophilic infiltration, proliferative inflammation developed around the foci of abscesses and necrobiosis, and connective tissue was formed.

IV. Discussion

Thus, the presented data convincingly prove the high clinical efficacy of antibacterial therapy based on a CO_2 laser and photodynamic effects caused by the simultaneous action of a physical and chemical factor on the pathogenic microflora.

According to the literature data, the effectiveness of methylene blue as a photosensitizer in PDT has also been proven. Methylene blue has no dark toxicity to living cells. The photosensitizer and white light alone do not have photodynamic antimicrobial activity. Methylene blue had the maximum antibacterial activity at a concentration of 50 uM (0.05%). Considering the above positive qualities, methylene blue makes it possible to widely recommend photodynamic therapy of purulent wounds in clinical medicine.

At the beginning of the twentieth century, the idea of a "magic bullet" was expressed by Paul Ehrlich, who suggested that incubation of bacteria with methylene blue dye should cause them to die when exposed to light. The effect of other photosensitizers was expressed to one degree or another, but the maximum effect with the minimum dose of laser radiation was achieved with the use of methylthioninium chloride (methylene blue) and zinc phthalocyanine [41].

The European Laser Association in 1997 published the work of S.E. Milson et al. [41,42], which reported that H. pylori after incubation with methylene blue, toluidine blue and hematoporphyrin derivatives was successfully inactivated at doses of 50 and 100 J / cm2. The best photoinactivation effect was observed at a dose of 50 J / cm2 with methylene blue. The work noted that the dose of 50 J / cm2 is far beyond the damaging effect of laser radiation on the gastric mucosa [42].

The combined effect of PDT with methylene blue and a weak electric current (I mA) on E. coli in vitro in order to enhance the effect of PDT increases the efficiency of PDT [34]. The effect of preliminary laser irradiation of bacteria before incubation with a photosensitizer is interesting. In cases where APDT was applied to highly resistant bacteria such as the microbacterium tuberculosis, preliminary laser irradiation disrupted the structure of the cell wall in vitro and made the bacterium more susceptible to APDT [7].

PDT with methylene blue and irradiation with broadband white light (400-700 nm) at a dose of 10 J / cm2 inactivates Qb-bacteriophage RNA in vitro by linking it with plasma proteins [44].

The obtained clinical, histological, microbiological and immunological data indicate that photodynamic therapy with a laser and non-laser light source is a fairly effective non-invasive method for treating purulent wounds and serve as a rationale for the application of the method of photodynamic therapy in clinical practice for the treatment of local acute suppurative inflammation, in particular for the treatment of purulent proctological pathology [11].

The use of local photodynamic therapy in complex treatment with the use of laser radiation using the ALT "VOSTOK-03" apparatus and a photosensitizer of 0.05% methylene blue solution allows in a short time to achieve cleansing of wound surfaces from pathogenic microflora, to ensure the normalization of signs of intoxication in a shorter time compared to traditional treatment, to achieve a decrease in the number of progression of the pathological process on the foot from 31.5% to 6.7%, as well as a decrease in the number of deaths from 10.5% to 2.2% [29].

The optimal concentration of methylene blue in vitro, as well as the duration of laser radiation with a

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wavelength of 630–670 nm for photodynamic effects on Candida albicans, have been determined. A study (on rabbits) of the possibility of using photodynamic therapy (PDT) in fungal keratitis was carried out. At the next stage, the PDT method was introduced into clinical practice for the treatment of patients with fungal keratitis. PDT with 0.1% methylene blue is an effective method of treating fungal (C. albicans) keratitis, which is confirmed by microbiological and clinical studies [16].

Observation of the results of treatment of patients with purulent-destructive diseases of soft tissues shows that the use of laser methods of CO2 laser and subsequent PDT with the photosensitizer “Methylene blue” creates optimal conditions for cleansing the purulent focus from necrotic tissues and detritus, respectively, accelerating the reparative regenerative parameters. The method allows to achieve the fastest cleansing of the wound and reduce the duration of treatment in comparison with the control group of patients. The above results make it possible to evaluate the use of a CO2 laser and PDT with a photosensitizer “Methylene blue” in the treatment of purulent-destructive diseases and to recommend it for use in surgical practice.

V. Conclusion

1. Selective use of a CO2 laser allows for early and bloodless necrosectomy, improvement of wound repair, as well as reduction of its microbial contamination.
2. Photodynamic therapy, when used in patients with purulent-destructive diseases of soft tissues, allows at an earlier time to achieve cleansing of purulent wounds from pathogenic microbial flora, purulent exudate and accelerate its healing.
3. Photodynamic therapy is a fairly effective non-invasive and sparing method of treating purulent wounds and is a justified application of this method in clinical practice for the treatment of acute suppurative-inflammatory processes in combination with traditional methods.

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Smell Abnormalities Caused by Sars-Cov2 Infection: A Literary Review

By Vitória Freitas Silva, Andrey Modesto Velasquez Lins, Beatriz Cid de Matos & Agustín Miguel Rodrigues

Abstarct- *Context:* COVID-19 is an infectious disease caused by SARS-CoV-2 that started at the end of 2019, in Wuhan, spreading to multiple countries. This virus can produce symptoms of superior and inferior respiratory infection, cardiac lesions, and death. Among many other symptoms, disturbances in the sense of smell and taste are reported by patients. Even though most viral infections of the upper respiratory tract present anosmia associated with the infection, in the case of the SARS-CoV2 infection, these symptoms can happen in its absence. Because of this, the recovery time for anosmia caused by CoV2 can occur within a few weeks, while typical viral anosmia generally lasts for months.

Goals: Understand the specificities of the olfactory affections caused by SARS-CoV2 infection.

Keywords: *SARS-COV2; anosmia; neurons.*

GJMR-F Classification: *NLMC Code: WV 300*



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Smell Abnormalities Caused by Sars-Cov2 Infection: A Literary Review

Vitória Freitas Silva [α], Andrey Modesto Velasquez Lins [σ], Beatriz Cid de Matos [ρ] & Agustín Miguel Rodrigues [ω]

Abstract- Context: COVID-19 is an infectious disease caused by SARS-CoV-2 that started at the end of 2019, in Wuhan, spreading to multiple countries. This virus can produce symptoms of superior and inferior respiratory infection, cardiac lesions, and death. Among many other symptoms, disturbances in the sense of smell and taste are reported by patients. Even though most viral infections of the upper respiratory tract present anosmia associated with the infection, in the case of the SARS-CoV2 infection, these symptoms can happen in its absence. Because of this, the recovery time for anosmia caused by CoV2 can occur within a few weeks, while typical viral anosmia generally lasts for months.

Goals: Understand the specificities of the olfactory affections caused by SARS-CoV2 infection.

Activities developed: This article represents a simple revision of the literature published at PUBMED and validated by DECS, combining the terms "COVID-19" and "Smell and Taste dysfunction". Eight articles were found, but only three were used due to similarities to our goals.

Results: The nasal epithelium combines both respiratory and olfactory activity. The neural path is responsible for the olfactory information to be transmitted from the olfactory epithelium to the olfactory bulb, through axons of the sensory neurons that puncture the cribriform lamina of the ethmoid bone. Their circuits process the information before they reach the superior cerebral centers. Immunostaining of the olfactory epithelium revealed the presence of angiotensin 2 transformative enzyme in the sustentacular cells, instead of the olfactory neurons, which are the indirect affection target of the CoV2 infection. The sustentacular cells are responsible for sustaining the sensory neurons and for antigen phagocytosis. The local infection of the sustentacular and vascular cells of the nasal and bulbar epithelium may cause inflammation, which generates a series of events that affect either directly or indirectly, the correct and effective transmission of smell. During those events, a neural transmission blockage can happen, along with the decrease of hydric and ionic balance due to damage to the supporting cells. Besides that, the vascular damage with hypoperfusion of the olfactory bulb can lead to prolonged anosmia. Taking these analyses into account, more studies are still necessary to solidify the research findings to then venture into new hypothesis.

Keywords: SARS-COV2; anosmia; neurons.

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By Khadjibaev A.M., Juraev J.A., Pulat K. Sultanov & Makhmudjon M. Pulatov

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Problems of Early Diagnosis of the Abdominal Cavity with Concomitant Abdominal Trauma in Children

Khadjibaev A.M. [α], Juraev J.A. [σ], Pulat K. Sultanov [ρ] & Makhmudjon M. Pulatov [ω]

Abstract- In the structure of child mortality, trauma comes first among the causes of death in children over one year of age. Mortality in children with multiple and concomitant trauma remains high - from 7.1 to 22%.

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Results: The most frequent combinations of abdominal injuries were observed in patients with head trauma – 104 (88%) cases, chest – 31 (29.8%), limbs – 16 (13.6%), spine – 2 (1.7%) and pelvis – 1 (0.84%). Injuries were received by victims of road accidents – 78 (66.4%) cases, falls from a height – 39 (33.0%) and domestic injuries – 1 (0.84%).

Among the patients, a combination of 6 anatomical areas was identified in 6 (5%) cases; 5 regions – 8 (6.8%); 4 regions – 18 (15.2%); 3 regions – 46 (39%) and 2 regions – 40 (33.9%)

Conclusions: Improvement of minimally invasive methods for diagnosing abdominal injuries by expanding the therapeutic capabilities of video laparoscopy improves the results of surgical treatment for concomitant abdominal trauma.

Keywords: polytrauma, concomitant trauma, catatrauma, complex diagnostics, abdominal trauma.

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I. Introduction

A feature of modern childhood traumatism is an increase in the number of many types of injuries – combined and multiple trauma, leading to an increase in mortality and disability [1]. In peacetime, concomitant injury most often occurs because of road accidents and falls from a height [7].

According to the many authors, the mortality rate in childhood with associated injuries ranges from 7.1% to 22% [2,3]. High mortality is associated with late diagnosis of internal bleeding, as well as the emergence of several foci of nociceptive pathological impulses, which, with a sufficiently long and intense exposure, leads to disintegration and disruption of urgent compensatory mechanisms, therefore, to an increase in the severity and resistance of traumatic shock. [3.4]

The combination of trauma to the abdominal organs with damage to other anatomical areas of the body aggravates the condition of the victim, significantly complicates the diagnosis and worsens the prognosis [6]. In a timely manner undetected abdominal injuries lead to an error in the choice of surgical tactics. Despite the improvement of laboratory instrumental and minimally invasive diagnostic methods, in the surgery of abdominal injuries, the errors of diagnosis and, accordingly, the surgical treatment tactics are 20-38%. [3.4]

The aim of the study is to develop a therapeutic and diagnostic algorithm for surgical treatment for concomitant abdominal trauma in children.

II. Materials and Methods

Over the past 10 years (2010-2019), 118 patients aged 1 to 18 years with combined injuries were hospitalized in the Republican Scientific Center for Emergency Medical Aid (RSCEMA) in the department of emergency surgery. Of these, 61 (33.9%) patients applied through the emergency room, 51 (43.2%) – by gravity without a referral, and 6 (5%) – by gravity in a referral from other institutions. 83 (70.3%) were boys and 36 (29.6%) were girls.

Taking into account the periodization of childhood adopted in pediatrics, the material is divided into three age groups: younger, from 0 to 3 years – 17 (14.4%) children, average age 1.8 ± 1.1 years; average,

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4-11 years old – 69 (58.5%) patients, average age 8.4 ± 2.1 years; the oldest, 12-18 years old - 32 (27.1%) children, the average age is 15 ± 1.5 years [5]. Injuries were received by victims of road accidents - 78 (66.4%) cases, falls from a height – 39 (33.0%) and domestic injuries - 1 (0.84%).

Among the patients, a combination of 6 anatomical areas was identified in 6 (5%) cases; 5 regions – 8 (6.8%); 4 regions – 18 (15.2%); 3 regions – 46 (39%) and 2 regions – 40 (33.9%) (Diagram. 1).

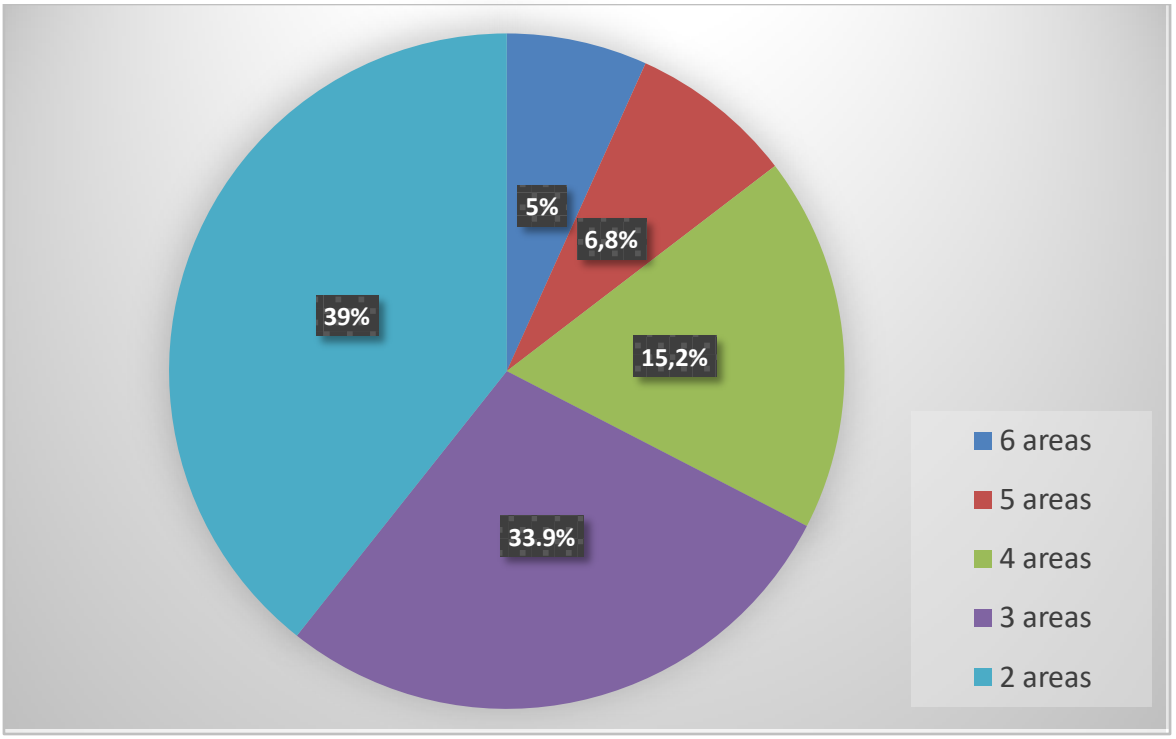


Diagram 1: Abdominal trauma in combination with other areas of the body.

The most frequent combinations of abdominal injuries were observed in victims with head grass – 104 (88%) cases, chest – 31 (29.8%), limbs – 16 (13.6%), spine – 2 (1.7%) and pelvis – 1 (0.84%) (Fig. 2)

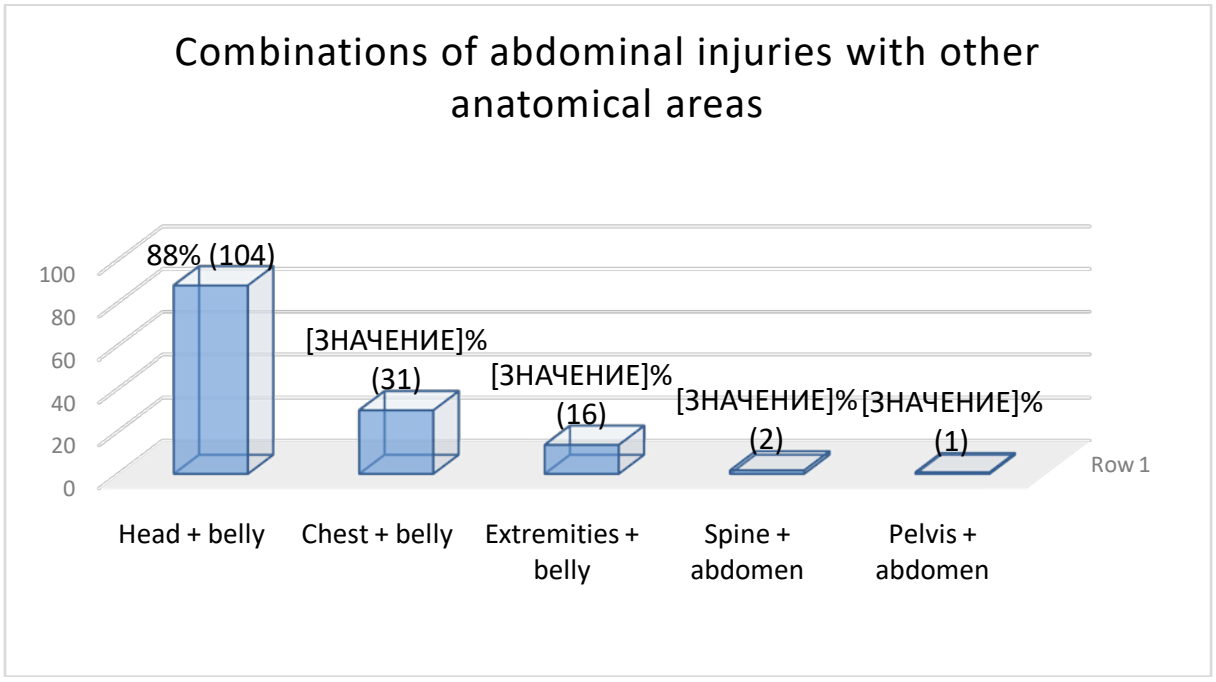


Diagram 2: Combinations of abdominal injuries with other anatomical areas.

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The logistic factor, which determines the duration of treatment and the timeliness of diagnostic and therapeutic procedures, depending on the severity of the injuries, plays the most essential role in the therapeutic efficacy in concomitant trauma [9].The key to success at the stages of diagnosis and determination of treatment tactics is the first "golden" hour of hospitalization, during which it provides an opportunity for the survival of victims with associated trauma. Of the 118 hospitalized patients with associated injuries, 73 (62%) patients came to the RSCEMA within 1 hour from the moment of injury, 18 (10%) - 2 hours, 9 (5%) - 5 hours, 18 (10%) - more than 5 hours.

The severity of the injury was assessed using the ISS scale [8]. Assessment of the severity of the injury showed that among them, injuries of a critical degree prevailed - 31 (26.3%) patients, 63 severe (53.4%) and 24 moderate (20.3%).

Among children with concomitant trauma, 64 (54.2%) were admitted in consciousness, 14 (11.9%) - in a state of stunning, 7 (5.9%) - in a soporous state, 33 (28%) - in various degrees of coma.

Determination of the dominant trauma is one of the most difficult sections in the treatment of victims with concomitant trauma. In the analyzes carried out by our center with combined trauma, in 85 (72%) cases, abdominal injuries were the dominant trauma, which posed the greatest threat to the victim's life. In most cases, with combined abdominal trauma, liver damage was noted in 40 (33.9%) cases, spleen - 39 (33%), kidney - 6 (5.08%), small intestine - 6 (5.08%), large intestine - 2 (1.7%) and gallbladder - 2 (1.7%). (Diagram 3).

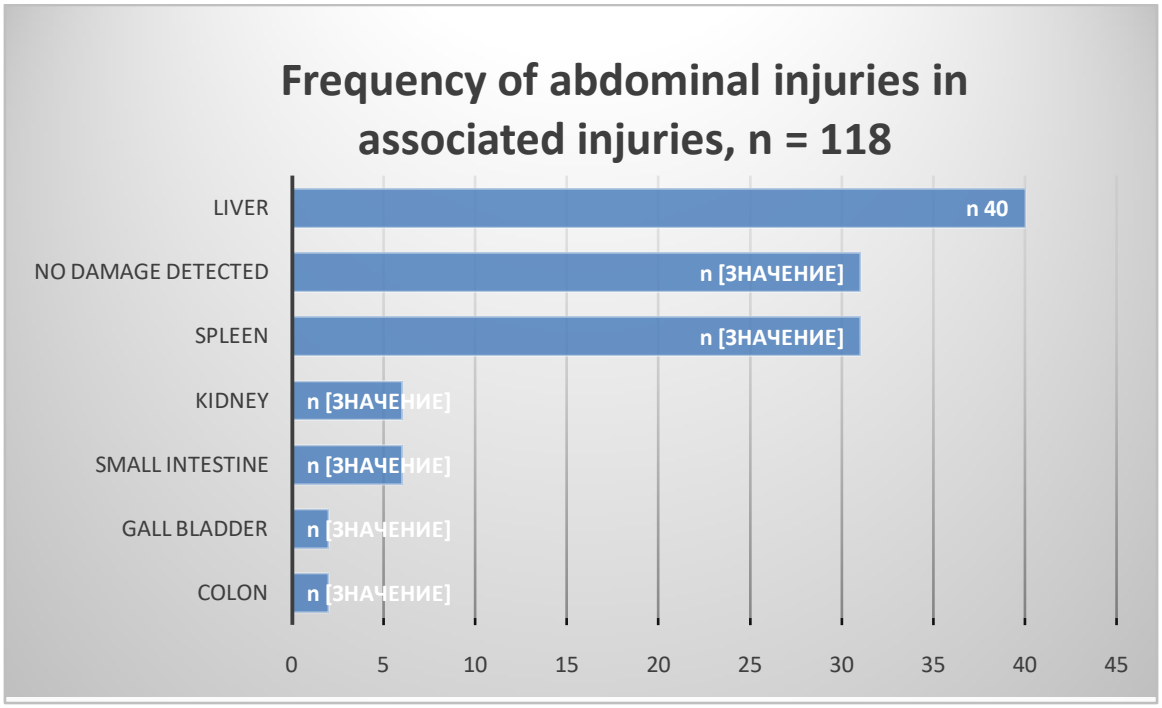
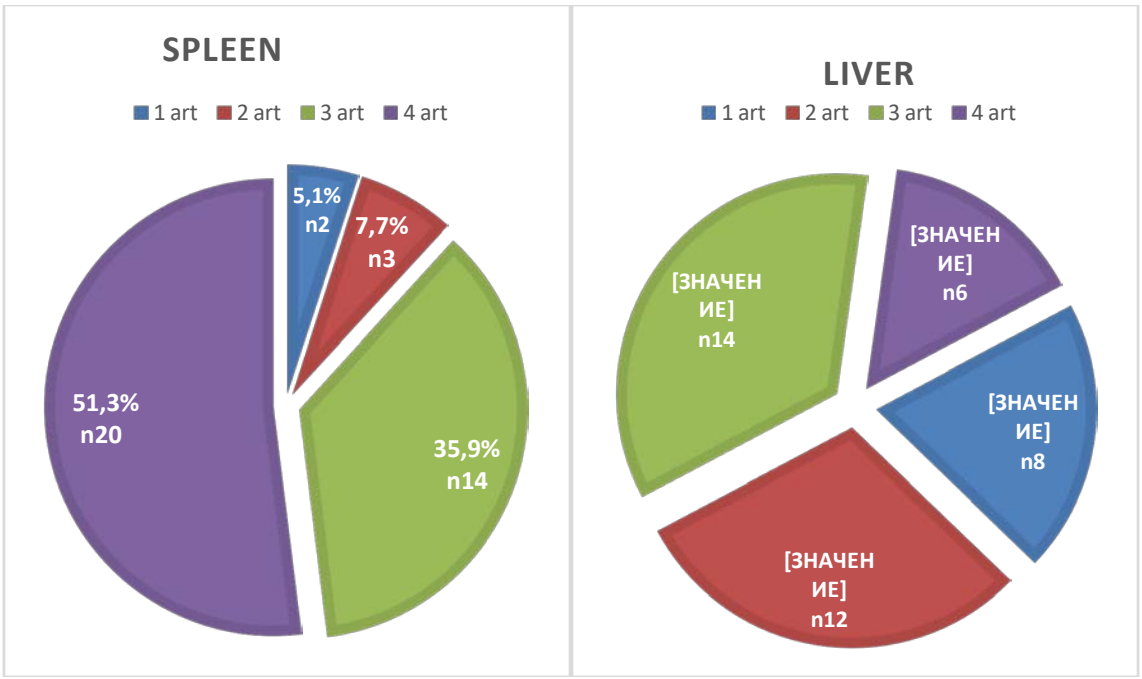


Figure 3: Frequency of injuries to the abdominal organs in concomitant injuries in children.

In our observations, the source of hemoperitoneum was mainly damage to the liver and spleen. According to the classification of injuries of parenchymal organs AATS (American Association of Trauma Surgery, 1994) - the American Association of Injury Surgery, a shortened scale of injuries, where 5 degrees of severity are distinguished [8,10], damage to the spleen I degree was noted in two cases (5.1%); grade II spleen injury was observed in 3 (7.7%) patients; III degree - in 14 (35.9%) patients; IV degree - in 20 (51.3%) victims, respectively. Grade V damage to the spleen was not observed. First-degree liver damage was detected in 8 (20%) patients; second degree - in 12 (30%); the third - in 14 (35%); the fourth - in 6 (15%). the fifth degree of degree of damage was not revealed in our patients.

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The degree of damage to the parenchymal organs of the abdomen according to AIS



III. Results and Discussion

In the diagnosis of combined abdominal injuries, ultrasound played an important role. Instrumental studies were started with ultrasound, with further re-examination 1 hour after admission and every 3 hours during the day. Among 118 children with concomitant injuries, in 90 (76.3%) cases, an ultrasound examination of the abdominal organs was performed, in 5 (4.2%) cases an emergency operation was performed without preliminary ultrasound examination, 23 (19.5%) died during shock measures upon admission before the ultrasound. At the same time, the sensitivity of ultrasound in determining hemoperitoneum in patients with abdominal trauma was 95.6%, and the diagnostic efficiency was 97.9%.

Polypositional radiography was performed according to standard techniques, while in 99 (83.9%) cases a simultaneous plain radiography of the skull, spine, chest and abdomen (including laterography), pelvis and extremities (according to indications) was performed. Of the total number of studies, 54 (53.5%) patients showed various bone-traumatic injuries of the limb on X-ray examination, 6 (5.94%) patients showed rib fractures and 39 (39.4%) children showed no pathology on X-ray. revealed. The sensitivity of X-ray examination in the diagnosis of injuries to the abdominal organs was low and amounted to 41.2 to 66.4%.

Multispiral computed tomography (MSCT) is a non-invasive method that provides valuable additional information about the extent, number and extent of damage in associated injuries. MSCT was performed in 46 (39%) patients. At the same time, MSCT of the head and neck was performed in 11 (24%), chest - 4 (8.7%), abdomen - 12 (26%), pelvis - 2 (4.3%). In 3 (6.5%) cases, a total MSCT examination was performed from the head to the lower extremities, which made it possible to simultaneously reveal the presence of damage to all anatomical regions in a few minutes. MSCT had a sensitivity of 97% -98%, a specificity and accuracy of 98%.

The final method in diagnosing abdominal injuries was laparoscopy, which made it possible to avoid unnecessary laparotomies. Diagnostic laparoscopy was performed in 45 (38.1%) cases of patients with ultrasound examination of the presence of free fluid in the abdominal cavity. Of these, 6 (5.1%) cases of abdominal injuries were not detected, in 4 (3.4%) patients, the operation was completed laparoscopically by coagulation of small ruptures of parenchymal organs and sanitation of the abdominal cavity: in 1 (0.8%) case performed laparoscopic suturing of the rupture of the liver, in 3 (2.5%)- diathermocoagulation of ruptures of the spleen. Diagnostic laparoscopy in 35 (29.7%) children revealed the presence of a large amount of blood due to deep damage to the liver and spleen with active bleeding, in connection with which they underwent a conversion to laparotomy. In 30 (25.4%) cases, laparotomy was immediately performed due to a large amount of free fluid on ultrasound and unstable hemodynamic parameters, among which in 23 (19.5%) cases the operation ended with coagulation and suturing of liver damage, in 32 (27 , 1%) - splenectomy.

Diagnostic laparoscopy makes it possible to determine the amount and nature of fluid in the abdominal cavity and, based on this, the volume of the operation is planned: to complete the operation

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laparoscopically or switch to laparotomy. In 73.3% of cases of associated injuries, diagnostic and therapeutic laparoscopy made it possible to complete the operation laparoscopically without unnecessary laparotomy, however, due to the diagnosis of extensive damage to the abdominal organs with active bleeding and the presence of a large amount of free blood in the abdominal cavity, in 26.0% of cases, conversion to laparotomy was performed. The sensitivity of diagnostic laparoscopy for blunt abdominal trauma was 100%, specificity - 91% and accuracy - 96%. It were not observed complications after diagnostic manipulations. The mortality rate of children with concomitant abdominal trauma was 21 (23%) children. The total number of bed-days was 9.3 ± 0.8.

In case of combined injury, together with the operation of the abdominal cavity, operations were performed simultaneously:

- 15 operations on the head. Craniotomy with removal of subdural hematoma - 3, intracerebral hematoma-2, Imposition of dilated cranial holes with removal of intracerebral hematoma and drainage -1, Imposition of dilated cranial openings with removal of subdural hematoma-2, Open osteosynthesis-2 with pin osteosynthesis -2, Closed osteosynthesis by pinning-2, Closed osteosynthesis with an external fixation device-1.
- 11 operations on the chest. Thoracotomy Suturing of a lung injury-1, Thoracoscopic hemostasis in case of injury of intercostal arteries-1, Thoracoscopic coagulation of a lung injury-4, Thoracoscopic suturing of a lung injury-2, Removal of coagulated hemothorax-3.
- 66 surgical interventions for injuries of the musculoskeletal system. Most of all were hip injuries - 28 operations, lower leg bones - 32 and pelvic bones - 6.

It was created a tactic based on the Ultrasound Score - USS scale (Fig. 2) to improve the diagnosis of injuries to the abdominal organs. An ultrasound scan in dynamics is conducted with a zero USS score, i.e. in the absence of free fluid in the abdominal cavity, and an operation of the dominant injury is performed in the presence of a dominating damage to another anatomical location. Diagnostic laparoscopy or laparotomy are performed when USS is equal to 1 or 2 or more. The operation of other anatomical locations is performed after intra-abdominal bleeding has been stopped and the integrity of the internal organs of the abdominal cavity has been eliminated.

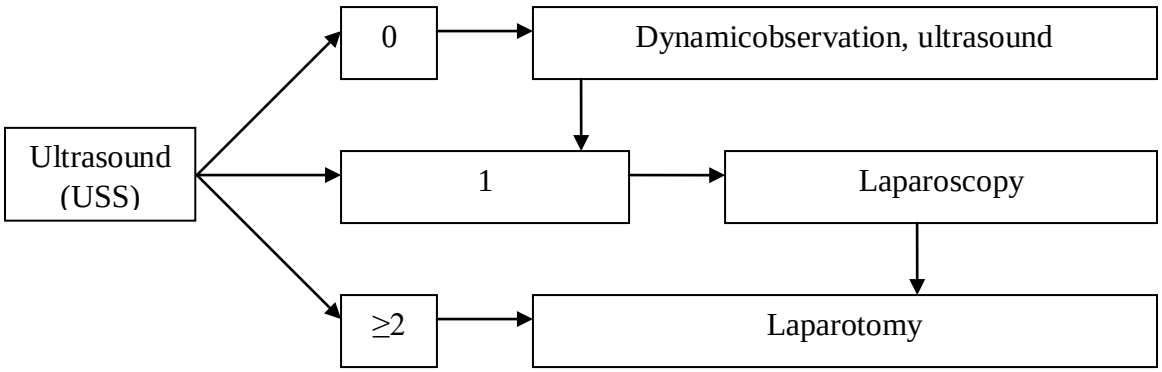


Figure 2: Algorithm for the treatment of patients with closed abdominal trauma

According to the recommended algorithm, the first stage is to restore the functions of vital organs with the elimination of damage to the anatomical regions, where there is a dominant, life-threatening nature of damage. The restoration of the anatomical and functional integrity of other anatomical areas, where the nature of the damage is not dominant, is carried out in the second stage.

IV. Conclusions

1. Ultrasound gradation of the volume of free fluid in the abdominal cavity USS (Ultrasound Score) makes it possible to determine the surgical tactics for concomitant abdominal trauma.
2. In cases of severe trauma with unstable hemodynamics, a total MSCT examination from the head to the lower extremities is justified for the timely detection of the dominant injury and other injuries.
3. Improvement of minimally invasive methods for diagnosing abdominal injuries by expanding the therapeutic capabilities of video laparoscopy improves the results of surgical treatment for concomitant abdominal trauma.
4. The proposed algorithm allows, first of all, to restore the dominant and life-threatening damage to the anatomical areas, from which, along with anti-shock measures, it is necessary to begin the surgical treatment tactics.

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Socio-Demographic and Clinical Profile of Lip, Oral Cavity and Pharyngeal Cancer in an Urban Cancer Centre in Coimbatore

By Dr. Sujatha K & Aji Antony

Abstarct- The incidence and demographic data of cancer is the important basis for cancer prevention. Lip, oral cavity and pharyngeal cancers (LOCP) have a variety of geographic distribution and multiple risk factors. This study aims to describe and compare the epidemiological profile of LOCP cancers. A retrospective study was done and the data of LOCP cancer patients, admitted during the year 2017 at Coimbatore Medical College Hospital was collected. A total of 441 LOCP cases were recorded, of which most cases belonged to the age group of 51-70 years and male gender. The most common subtypes are mouth and tongue. The increased incidence of LOCP cancer and its subtypes associated with smoking and tobacco points to the pivotal role of these risk factors in the pathogenesis of LOCP cancers. Hence better awareness and stringent measures is the need of the hour of the decrease the ongoing burden of these cancer types.

Keywords: *lip cancer, oral cancer, risk factor, epidemiology, smoking, tobacco.*

GJMR-F Classification: *NLMC Code: WU 113*



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Socio-Demographic and Clinical Profile of Lip, Oral Cavity and Pharyngeal Cancer in an Urban Cancer Centre in Coimbatore

Dr. Sujatha K [α] & Aji Antony [σ]

Abstract- The incidence and demographic data of cancer is the important basis for cancer prevention. Lip, oral cavity and pharyngeal cancers (LOCP) have a variety of geographic distribution and multiple risk factors. This study aims to describe and compare the epidemiological profile of LOCP cancers. A retrospective study was done and the data of LOCP cancer patients, admitted during the year 2017 at Coimbatore Medical College Hospital was collected. *A total of 441 LOCP cases were recorded, of which most cases belonged to the age group of 51-70 years and male gender.* The most common subtypes are mouth and tongue. *The increased incidence of LOCP cancer and its subtypes associated with smoking and tobacco points to the pivotal role of these risk factors in the pathogenesis of LOCP cancers. Hence better awareness and stringent measures is the need of the hour of the decrease the ongoing burden of these cancer types.*

Keywords: lip cancer, oral cancer, risk factor, epidemiology, smoking, tobacco.

I. Introduction

Cancer ranks as a leading cause of death and an important barrier to increasing life expectancy in every country of the world. [1] GLOBOCAN 2018stated that nearly 18.1 million new cancer cases and 9.6 million cancer deaths occurred in 2018 worldwide, compared with 14.1 million and 8.2 million, respectively, in 2012. [2,3] Of these, the incidence of lip, oral cavity, and pharyngeal (LOCP) cancers is increasing. In 2018, LOCP cancers have been estimated to be responsible for 710,237 incident cases and 358536 deaths accounting for about 3.9% of all cancer cases and 3.7% of cancer deaths.[2] The projections for the year 2035 show a 62% increase in the number of cases.[4] LOCP cancers often have similar risk factors, common pathology and hence, are grouped together. [5] The predominant risk factors for LOCP cancers include tobacco smoking and alcohol consumption although other factors, including the aspects of diet, may affect the risk.[6] Of these the most important risk factor is tobacco use. There are about 60 carcinogens in cigarette smoke and nearly 16 carcinogens in chewing or smokeless tobacco. The types of chewable tobacco products manufactured in the country are innumerable such as pan masala, guttka, pukar, khaini and are easily accessible to the common man. These products are kept for longer times in the buccogingival sulcus and accounts for higher incidences of oral cavity cancer. [7] Due to the differences in the prevalence of specific risk factors, there is a considerable variation in the pattern of these cancers. A 20-fold global variation is seen in the incidence of these cancers.[8] Two-thirds of this burden is in the developing countries, where under-ascertainment of cases is significant.[9]In India too, there is a varied geographical distribution within the country. [10] Moreover the data on cancer is limited because the cancer registries which provide data on incidence rates cover only less than 10% of the total population.[11] Hence it becomes necessary to analyse cancer trends based on the regional data and identify the specific risk factors as well as the future prospects for effective interventions in cancer prevention. Therefore, the present study aims to describe and compare the epidemiological profile of the LOCP cancer patients registered in our hospital.

II. Methodology

A record based retrospective study was conducted at the Regional Cancer Centre, Coimbatore Medical College Hospital, Coimbatore, Tamil Nadu, India. The study was conducted over a period of six months from February 2018 to July 2018. Time bound sampling was done. Data of all the cases of LOCP cancers registered from January 1, 2017 to December 31, 2017 were taken. A pre-tested, semi-structured case study form was used as the study tool. It has four parts: a) Demographic details: It includes the age, sex, socio-economic status and the residential address of the patients. Socio-economic status of the patients was classified according to the Modified Kuppuswamy scale.[12] The patients were classified according to the district they reside in. b) Clinical profile: It includes the cancer site, histopathological type and stage of cancer. The cancer site was classified according to the International Classifications of Diseases of Oncology, 3rd Edition (ICD-O). The cancers included: lip (ICD-O: C00), tongue (ICD-O: C01-C02), gum (ICD-O: C03), mouth (ICD-O: C04, C06), palate (ICD-O: C05), parotid gland (ICD-O: C07) submandibular gland (ICD-O:

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C08.0), tonsil (ICD-O: C09), oropharynx (ICD-O: C10), nasopharynx (ICD-O: C11), pyriform sinus (ICD-O: C12), hypopharynx (ICD-O: C13) and other ill-defined part of the lip, mouth and pharynx (ICD-O: C14). The cancer stage denotes the clinical extent of disease at the time of presentation. It consists of three categories- localised, regional and distant. c) Risk factors: It includes history of personal habits like smoking (cigarettes and bidi), alcohol and smokeless tobacco products like chewable tobacco, pan masala, gutka etc. d) Treatment modality: type of cancer treatment - chemotherapy, radiotherapy and/or surgery was analysed. The data on palliative care was also collected.

The data were free from personal identifiers and the patient confidentiality was ensured. The collected data were entered in Microsoft Excel and analysed using Statistical Package for Social Sciences (SPSS) version 23. Data were collected as categorical variables and results are displayed as proportions and tables, pie-charts and graphs were used to demonstrate the results.

III. Results

A total number of 441 LOCP cancer cases were reported in our hospital during our study period, from January 1, 2017 to December 31, 2017. In the same period, there were 1992 cases of all types of cancer (978 in men and 1014 in women). LOCP cancers comprised about 22.14% of all cancers registered in the study period.

Demographic details: Table–1 shows the sociodemographic characteristics of the study population. Among the 441 study subjects, 329 (74.6%) patients were male and 112 (25.4%) were female. Our study population is distributed from the age of 20 to 93 years with a mean age being 58.25±11.4 years. The age group of 51-60 was found to have the highest percentage of cancer cases (142, 32.2%), followed by the age group of 61-70 years (132, 29.9%). As per the socio-economic status by the Modified Kuppuswamy scale, majority of them belonged either to lower (200, 45.4%) or upper lower class (213, 48.3%). The maximum number of cases came from the Coimbatore district (265, 60.1%), followed by Tiruppur (80, 18.1%) and Erode (47, 10.7%) districts respectively.

Clinical profile: Figure-1 shows the subtypes of the LOCP cancers. The most common subtype among LOCP cancers is Mouth (27%), followed by tongue (25%). Histopathologically, squamous cell carcinoma is the most common type contributing to 425 (96.5%) of cases. Figure – 2 shows the stage of cancer at the time of presentation. Nearly 73% of cancer cases presented with regional extent of disease. Localised and regional extent contributed to nearly 84% of cases.

Table – 1: Sociodemographic characteristics of LOCP cancer cases (n=441)

Sociodemographic characteristics	Number (n=441)	Percentage
Age group (in years)		
≤30	4	0.9
31-40	25	5.7
41-50	91	20.6
51-60	142	32.2
61-70	132	29.9
71-80	41	9.2
≥80	6	1.4
Gender		
Male	329	74.6
Female	112	25.4
Socio-economic status		
Lower class	200	45.4
Upper lower class	213	48.3
Lower middle class	26	5.9
Upper middle class	2	0.5
District wise distribution		
Coimbatore	265	60.1
Tirupur	80	18.1
Erode	47	10.7
Nilagiris	19	4.3
Salem	10	2.3
Namakkal	5	1.1
Krishnagiri	1	0.2
Dharmapuri	3	0.7
Others	11	2.5
Total	441	100

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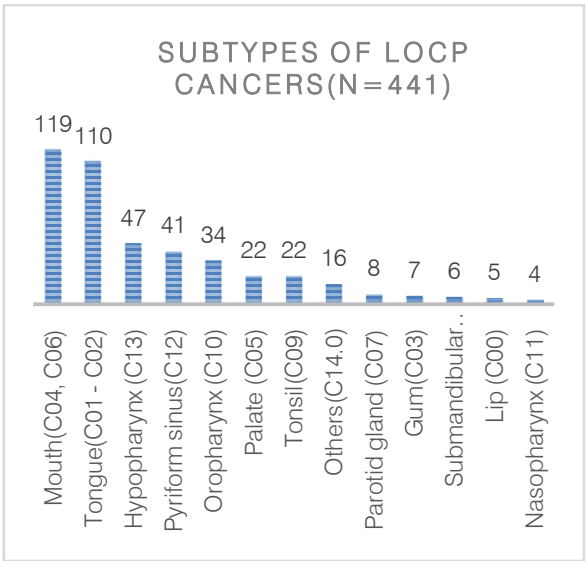


Figure 1: Subtypes of LOCP cancers (n=441)

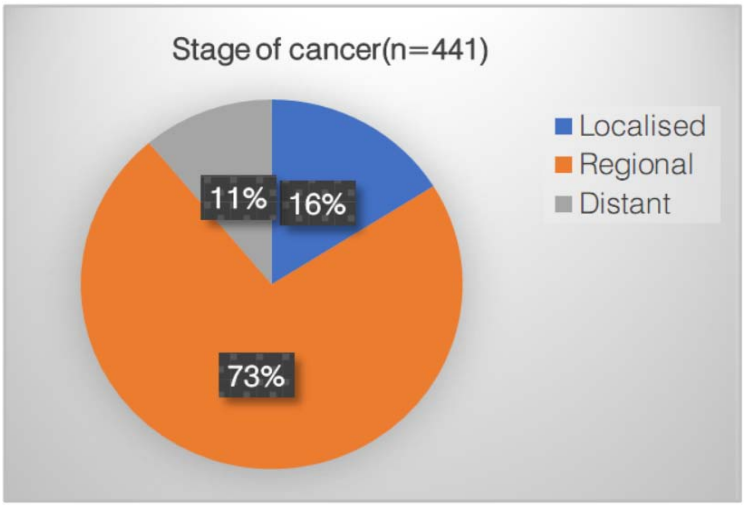


Figure 2: Distribution of patients according to stage of cancers (n=441)

Table – 2: Distribution of risk factors among the study population (n=441)

Risk factor		Type of cancer				Total
		Lip	Oral cavity	Pharynx	Salivary glands	
Smoked tobacco products	Yes	3	152	102	10	267
	No	2	106	62	4	174
Alcohol	Yes	1	117	82	6	206
	No	4	141	82	8	235
Smokeless tobacco products	Yes	1	160	102	3	266
	No	4	98	62	11	175
Total		5	258	164	14	441

Risk factors: Table – 2 shows the distribution of risk factors among the study population. Nearly 267 patients (60.1%) were smokers and 206 patients (46.7%) used alcohol. Smokeless tobacco products like gutka, chewable tobacco, pan masala etc. were used by 266 patients (60.3%). Of the 258 oral cavity cancer cases, nearly 152 cases were smokers (58.9%) and 160 patients used other forms of tobacco (62%).

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Treatment modality: Distribution of cancer cases according to type of treatment is shown in Table 2. Majority of them received the combination therapy of surgery and radiotherapy (69.6% patients). Nearly 8 people (1.8%) who were in the advanced stages of the disease received palliative care.

IV. Discussion

The trends of lip, oral Cavity and pharyngeal cancers show wide variation worldwide. Hence it becomes necessary to study the incidence and demographic profile of LOCP cancers based on regional data. The incidence of lip and oral cavity cancer in our study was nearly 13.9%. This is in sharp contrast to 3.9%

Table 3: Number and Relative Proportion of patients according to Type of Treatment given (n = 1992)

Type of treatment	Number (n=441)	Percentage
Surgery alone	42	9.5
Surgery + Chemotherapy	1	0.2
Surgery + Radiotherapy	307	69.6
Radiotherapy +Chemotherapy	55	12.5
Surgery + Chemotherapy + Radiotherapy	36	8.2
Total	441	100

incidence in the world and 7.6% incidence in India. [2,13] Although the national statistics show a higher incidence of LOCP cancers, the present study shows that the incidence rate is almost doubled, compared to that of the national statistics. This is a major cause for concern. The males (74.6%) were affected more commonly than females (25.4%) in our study. The male – female ratio was nearly 2.9:1. This is in contrast to the global data where the ratio was approximately 2:1 and Indian data where the ration was nearly 1.8:1. [2,10] This Indian study by Majhi et al mentions that patients have a better awareness and higher will to seek medical treatment in the developed parts of the country i.e., western and southern India, so the females in these areas, access the health care system better. [2] However these studies are done only in the capital cities like Chennai, Trivandrum and Pondicherry, and cannot be generalised to the whole south India. The present study was done in the Coimbatore district of Tamilnadu which is not as developed as these capital cities. Our hospital receives cancer cases from the farthest of the villages in neighbouring districts also. This can be attributed to the gross difference in the sex ratio compared to the national and global statistics. In our study, the majority of LOCP cancer cases (62%) belonged to the age group of 51-70 years. This corroborates with the studies done by Saika et al., [14] and Gupta et al. [15]

Lip and oral cavity cancers formed the major constituent of the LOCP cancers (51.2%) in the GLOBOCAN cancer statistics 2018. [2] In our study too, lip and oral cavity cancer constituted about 59.6% of all LOCP cases. Of this mouth (27%) was the most common type. The incidence of the cancer hypopharynx is nearly 20% in our study, whereas it was only 10.2% in the global statistics. [2] However, the incidence of cancer salivary glands among our study population (3.2%) was comparatively lower when compared to the global statistics (7.6%). Du et al., stated that from 1990 to 2017, the global incidence for nasopharyngeal cancers decreased dramatically while the incidence for lip and oral cavity cancers and other pharyngeal cancers increased. [16] GLOBOCAN 2018 data shows that nasopharyngeal cancers constitute around 18% of LOCP cancers. [2] In our study, there were only 4 cases of nasopharyngeal cancer (0.9% of LOCP cancers). Ariyawardana et al conducted a study in Australia where he reported that lip cancer was the most common cancer contributing to 36% of all LOCP cancers. [5] But there were only 5 cases of lip cancer in our study. (1.1% of LOCP cancer cases). Such low numbers may be attributed to the limited sample size in the study. This may also be attributed higher incidence of personal habits like smoking, alcohol, tobacco chewing and consuming various forms of tobacco like gutka, pan masala and betel nut, which invariably increase the risk of oral cavity and pharyngeal cancers (except nasopharyngeal cancer) whereas have lesser association with lip cancer and nasopharyngeal cancer. It is also noteworthy that there is a steady decline in the prevalence of smoking and tobacco chewing in the developed nations. [17, 18] This steady decline has been attributed to the decreased incidence of oropharyngeal cancers and increase in other LOCP cancer globally. [5]

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Tobacco and alcohol are age old risk factors for LOCP cancers. In our study, nearly 60% cases used tobacco and 47% used alcohol. Worldwide, smoked tobacco is the most common form of tobacco use. Cigarette is the most commonly consumed smoked tobacco. In India however, the usage of bidis is highly prevalent. Similarly, there is an increased use of smokeless tobacco products like gutka, pan masala etc. [19] In our study too, there is a high prevalence of tobacco and there is almost similar usage of smoked and smokeless products of tobacco. Avoiding tobacco and alcohol can prevent up to 80% of oral cancer. [19] Interventions for smoking prevention or cessation are much effective when designed by individual counsellors, physicians, or workplace programmes. National smoke-free programs and policies have public health benefits for both alcohol- and tobacco-related health problems. In our setting, special emphasis should be given to the prevention of smokeless forms of tobacco due to the high prevalence of its usage.

V. Conclusion

Our results show a higher proportion of LOCP cancers among all cases in comparison with national and global statistics. Among the LOCP cancers, the subtypes which have a higher association with smoking and tobacco like oral cavity cancer and hypopharyngeal cancer have a higher incidence than those with lesser association like salivary gland tumours and lip tumours. This shows the increased need for awareness among public regarding the ill effects of smoking and alcohol. It also warrants the policy decision from the government to gradually withdraw tobacco and other related products from the market, with special emphasis to the smokeless tobacco products. Moreover, this study encourages to do more hospital-based studies apart from the studies based on registries, so that cancer patterns in each area can be discussed and thus effectively provide specific protection.

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Conflict of interest: None declared

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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.



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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.

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

Tips for writing a good quality Medical Research Paper

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

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

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

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

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



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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.

The Administration Rules

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

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

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

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

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

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

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

INDEX

A

Abundantly · 10

B

Blizzard · 1, 6

C

Concomitant · 4, 18, 19, 21, 23, 25, 26, 27
Contingent · 3

D

Dominant · 9, 21, 25, 26

E

Edematous · 10
Epithelium · 15
Extremities · 4, 23, 24, 26

G

Granulation · 2, 5, 7

I

Irradiation · 4, 10

P

Palliative · 29, 31

R

Resistance · 13, 19

S

Stringent · 28
Susceptible · 10

T

Traumatic · 18, 19, 23





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