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RESEARCH ARTICLE

ANALYSIS OF EMERGENCY CASES DONE BY DEPARTMENT OF GENERAL SURGERY OF GIMS KALABURGI, KARNATAKA, INDIA

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Abstract

Aims and objectives:

1. To know to the most common emergency cases operated.
2. Most common time of the day when the cases get operated
3. To know if Laparoscopic surgeries are being done as emergency procedures.

Method: This is the prospective statistical analysis of the emergency cases operated in the GIMS, Kalaburgi from Oct 2022 to Oct 2023. The emergency OT cases done in our institute are collected and tabulated into Age of the patient, Diagnosis, type of surgery done, surgery done under what unit and time of the surgery and results are derived. All general surgical emergencies are included in the study and cases from the surgical super speciality emergency OTs are excluded from the study.

Results: After tabulating, total cases operated on emergency basis were 698. Age groups most commonly presented were from 21-30 yrs(23%) followed by 31-40yrs(18%) and then 41-50yrs (14%) making 55% of all the cases. Most common procedure done was appendicectomy(Open)(159 cases)for acute appendicitis, appendicular perforation and appendicular abscess. Even Laparoscopic appendicetomy was also done in 10 cases, followed by debridments (149 cases) Incicion and drainage of abscess (136 cases) and then explorative laparotomy (80 cases) for multiple causes including Intestinal perforation, intestinal obstruction, Hemoperitoneum, GB perforation, volvulus, spleenectomy etc. 42 cases underwent orchidectomy, and 38 cases for amputations(above and below knee). 23 obstructed inguinal hernia cases were also operated. 313 cases were operated in the time slot C (6PM to 12AM) and followed by slot B (12PM to 6PM)..

Conclusion: By our study we conclude that most common emergency cases operated in our institute is Appendectomy in the Time slot between 6 PM to 12 AM. In emergency condition laparoscopic procedures can also be done and the patient can be treated accordingly.

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Introduction:-

Emergency general surgery (EGS) constitutes a substantial portion i.e. 60% of surgical operations [1], representing 11% of hospital admissions [2]. The demographic shift towards an aging population has reshaped the surgical landscape, with a recognition that frailty, encompassing physiological decline, surpasses chronological age in predicting mortality and morbidity [3, 4,5].

The health burden of conditions requiring surgical intervention is formidable, especially in low- and middle-income countries (LMICs), where approximately two billion people lack access to surgical care, particularly for emergencies with life-threatening implications[6,7]. Delays in emergency surgery, often measured in minutes or hours, can have profound implications for disability and survival.

The global demographic transition, marked by an aging population and rapid urbanization in LMICs, amplifies the prevalence of advanced cardiovascular disease and neoplasia, requiring an adaptive response from general surgeons and health systems[7]. As these challenges evolve, an augmented understanding of the disease burden associated with surgical emergencies is crucial. Insights from available literature aid both surgical and public health communities in developing strategic and tailored responses to urgent surgical needs[6,7].

Laparoscopy, a technique suggested in 1924 for finding internal bleeding after trauma[8], evolved to detect blood from viscera rupture by 1925[9]. In the 1940s, concerns about infection slowed its use for abdominal emergencies despite its precise diagnostic potential[10,11].

In the 1960s, Heselson championed laparoscopy for trauma, showing it reduced hospitalization and unnecessary laparotomies. While it's beneficial in standardized procedures, its use becomes less clear in less-defined cases relying on intra-abdominal findings [10-13].

Emergency surgeries ideally happen during regular hours, with the Acute Surgical Unit model reducing after-hours operations, ensuring safe care for patients. The service period for emergency general surgeons should consider safe-hours principles to address fatigue-related concerns[14-20].

Global increases in diabetes and peripheral arterial disease, especially in India, lead to a higher risk of minor amputations, impacting patients' lives. Predictors of lower extremity amputation in diabetic foot ulcer patients include older age, long diabetes duration, poor glycemic control, malnutrition, peripheral arterial disease, severe foot ulcers with infection, a history of prior amputation, foot gangrene, and a low ABI level. Preventing amputations in diabetic patients requires a multidisciplinary approach due to a 6.3% global prevalence of diabetic foot ulcers. The amputation rate in diabetes is over five times higher than in those without diabetes [21,22].

Aims and Objectives:-

1. To know to the most common emergency cases operated.
2. Most common time of the day when the cases get operated
3. To know if Laparoscopic surgeries are being done as emergency procedures.

Source of data collection
Data collected from the OT registers of Dept of General surgery for 1 year in a prospective manner

Place of study
Gulbarga institute of medical sciences, Kalaburgi

Study design
Prospective Statistical analysis

Duration –
OCT 2022 to OCT 2023 (1 year)

Inclusion criteria

1. Patients undergoing emergency surgery of all ages
2. surgery taken up by dept of general surgeries
3. Laparoscopic emergency surgeries.

Exclusion criteria

Surgeries done by surgical super specialty departments.

Methodology:-

The emergency surgeries done in our institute during the 1 year time are collected and tabulated into Age of the patient, Diagnosis, type of surgery done, surgery done under what unit and time of the surgery and results are derived.

Age of the patients divided into by groups of 10 years i.e. 0-10years, 11-20 years and so on and last >80 years. Time of the surgeries are divided into 4 time slots, they are as follows - 6 AM to 12 PM, 12 PM to 6 PM, 6 PM to 12 AM, 12 AM to 6 AM. Laparoscopic surgeries are calculated separately

Results:-

After tabulating the statistical data into tables, total cases operated on the emergency basis were 698. Among 698, 452 (64.7%) were males and remaining 246 (35.3%) were females.

According to the age groups number and percentage of cases done are as follows

Table 1:- Age wise distribution and percentage.

AGE GROUP	NO OF CASES	%
0-10	21	3
11-20	91	13
21-30	161	23
31-40	125	18
41-50	98	14
51-60	84	12
61-70	55	8
71-80	42	6
>80	21	3

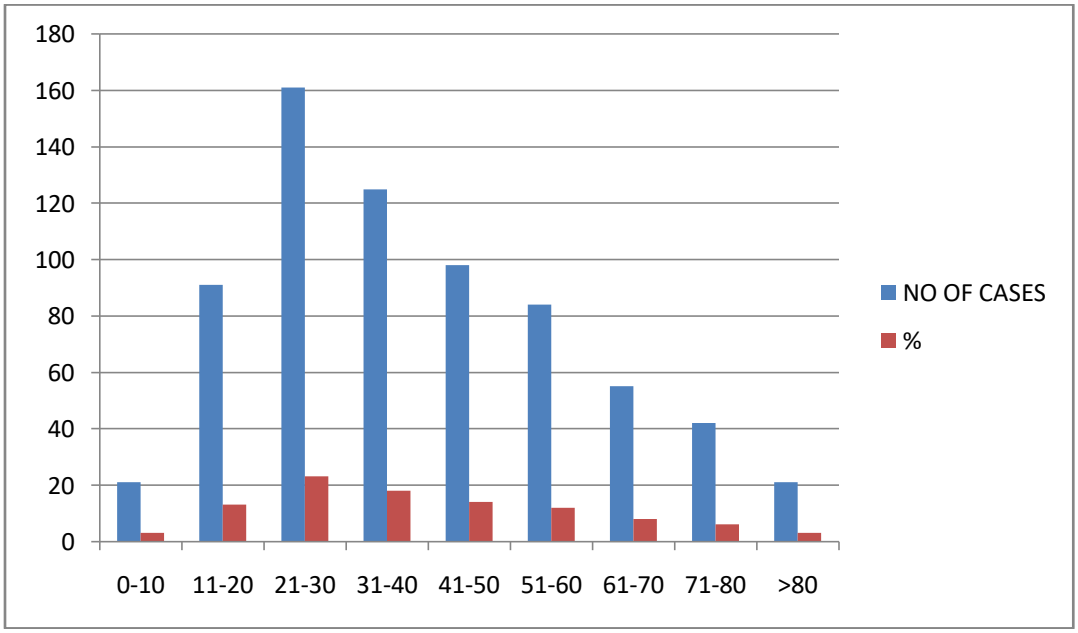

Chart 1:- Age wise distribution and percentage.

Age groups most commonly presented were from 21-30 yrs(23%) followed by 31-40yrs(18%) and then 41-50yrs (14%) making 55% of all the cases.

Different cases that are operated on emergency basis are as follows

Table 2:- Cases operated in different time slots, and its percentage.

CASES	NO OF CASES	%
Appendectomy(open)	159	22.7
Appendectomy(Lap)	10	1.4
incision and drainage for abscess	136	19.4
Explorative Laparotomy	80	11.4
debridment	149	21.3
orchidectomy	42	6.01
hernioplasty (obstructed hernia)	23	3.2
above spleen amputation	26	3.72
below knee amputation	12	1.71
circumsision	3	0.4
spleenectomy	3	0.4
tracheostomy	3	0.4
collagen dressing	6	0.8
disarticulation	46	6.59

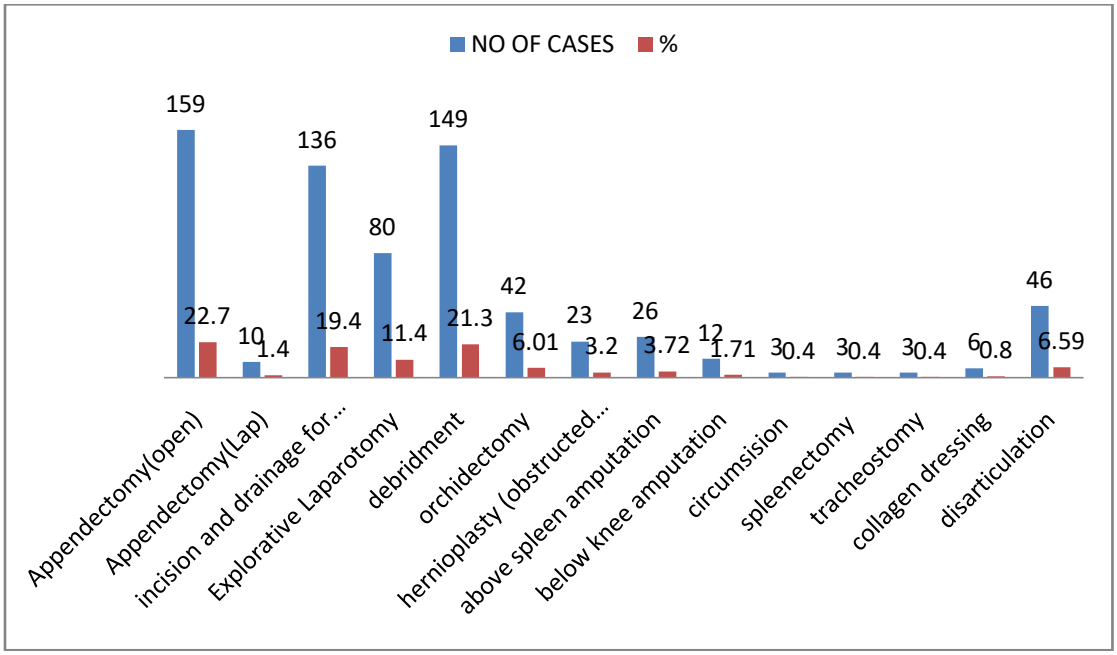

Chart 2:- Different cases that are operated on emergency basis and percentage.

Most common procedure done was appendicectomy(Open)(159 cases)for acute appendicitis, appendicular perforation and appendicular abscess. Even Laparoscopic appendicetomy was also done in 10 cases, followed by debridments (149 cases) for various causes like necrotizing fascitis, maggots, Fournier gangrene, diabetic feet, cellulitis, and etc. Incicion and drainage of abscess(136 cases) which includes perianal abscess, thigh abscess, gluteal abscess, psoas abscess etc and then explorative laparotomy (80 cases) for multiple causes including Intestinal perforation, intestinal obstruction, Hemoperitoneum, GB perforation, volvulus, ca colon , spleenectomy(3) etc. 42 cases underwent orchidectomy for pyocele and torsion, and 26 cases for above knee amputations and 12 below knee amputations. 23 obstructed inguinal hernia cases were also operated.

TIME SLOT	NO OF CASES	%
6 AM TO 12 PM	**118**	**16.9**
12 PM TO 6 PM	**212**	**30.3**

TIME SLOT	NO OF CASES	%
6 PM 12 AM	313	44.8
12 AM TO 6 AM	55	7.87

Table 3:- cases operated in different time slots, and its percentage.

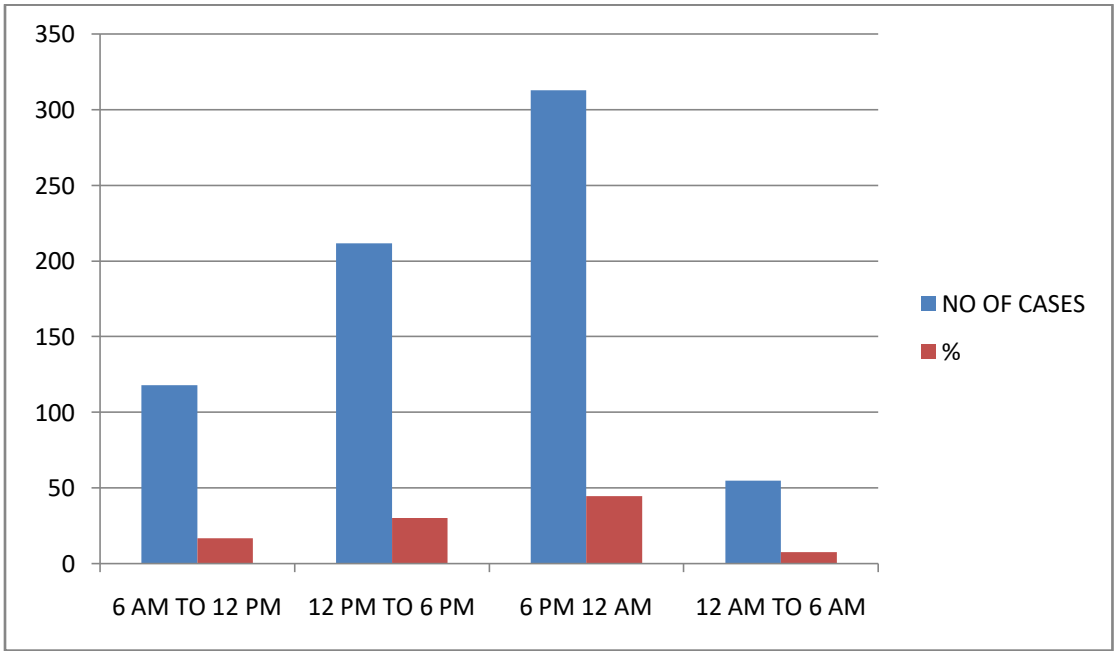

Chart 3:- Cases operated in different time slots, and its percentage.

313 cases were operated in the time slot of 6 PM to 12 AM and followed by slot of 12 PM to 6 PM.

Discussion:-

In our study, after analyzing the results we came to know that most common disease burden requiring emergency OR is acute abdomen with most common diagnosis of acute appendicitis(24.1%), and other causes of the acute abdomen are hollow viscous perforations and obstructions(11.4). Other than acute abdomen, other cases requiring emergency OR are debridement's (21.3%) and incision and drainage(19.4%)s and disarticulations(6.5%). Among the above cases most common factors that we noticed is, >40% of the cases are of >40 years of age and are either diabetic (55%) or hypertensive (57%). we conclude that most common emergency cases operated in our institute is Appendectomy and in the Time slot between 6 PM to 12 AM.

Emergency operations should be performed during the working day unless there is a threat to life, limb or organ. Reduction of after-hours operating (between 24.00 and 08.00 hours) was observed with the ASU model in most studies in comparison with (14-17,20), in our institute least number of cases are operated in the time slot between 12 am to 6 am. Also Simulator-based studies have shown that fatigued surgeons make, more errors and operate more slowly compared to non-fatigued surgeons[18,19]. Fatigue and lack of sleep also lead to distress and ultimately burnout[20]. found that burnout was one of the strongest factors associated with major medical error.

In recent years, there has been a global increase in the prevalence of diabetes and peripheral arterial disease (PAD), particularly in India. Patients with these conditions face an elevated risk of minor amputations, with an annual rate of 22.1 per 10,000 population with diabetes over the past 3 years. Minor amputations increase the risk of subsequent major amputation, impacting mobility and quality of life, with one in 10 patients experiencing an ipsilateral major amputation within the first year and half succumbing to mortality by 5 years[21,22]. Older age, long duration of diabetes, poorly glycemic control, malnutrition, PAD, severe foot ulcers with infection, a history of prior amputation, foot gangrene, and a low ABI level are independent predictors of lower extremity amputation (LEA) in DFU patients[22]. Multidisciplinary intervention is essential to prevent amputation in diabetic patients with foot ulcers, considering DFU's global prevalence of approximately 6.3%. The rate of LEA in diabetes is over five times higher than in those without diabetes [21]

In the 1940s, laparoscopy was deemed unsuitable for acute abdominal conditions such as stab wounds, gunshot wounds, and acute perforations of viscera due to concerns about infection spread [4], despite its early acknowledgment for facilitating precise diagnoses [5]. The contemporary perspective on diagnostic laparoscopy for trauma emerged in the 1960s when Heselson declared its safety, effectiveness, and economic advantages. He demonstrated reduced hospitalization, avoiding unnecessary laparotomies [6–9]. While the benefits of laparoscopy in standardized surgical procedures during emergencies are evident, they become less clear or limited when only a basic procedure plan is definable, and the surgical technique relies heavily on intra-abdominal findings. In emergency condition laparoscopic procedures can also be done and the patient can be treated accordingly.

Conclusion:-

By our study we conclude that most common emergency cases operated in our institute is Appendectomy in the Time slot between 6 PM to 12 AM. In emergency condition laparoscopic procedures can also be done and the patient can be treated accordingly.

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Conflict of interest –
None.

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