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FACTORS AFFECTING THE PROGNOSIS OF PATIENTS WITH ABDOMINAL TRAUMA: A RETROSPECTIVE COHORT STUDY

Asif Imran[1], Aurangzeb Khan[2*], Saad Ali Shah [3], Abbas Ali Raza [4], Tamjeed Gul[5], Muhammad Ismail[6]

[1]Assistant Prof surgery Department BKMC
[2]*Assistant Prof surgery Department BKMC
[3]Assistant Prof surgery Department BKMC
[4]Assistant Prof surgery Department BKMC
[5]Assistant Prof surgery Department BKMC
[6]consultant General Surgery Department BKMC

***Corresponding Author**: Aurangzeb khan
*Assistant Prof surgery Department BKMC, Email: khanaurang0@gmail.com

Abstract

Background: An investigation was carried out over five years to see what variables affected the consequences that individuals with abdominal trauma suffered. Fifty patients in the cohort were hospitalized at a trauma centre. Information on the characteristics of the patients, ratings indicating the degree of harm incurred, and the fallout from the traumatic experience were recorded and examined. The results demonstrated that several patient characteristics, including age, gender, and any additional conditions they had, in addition to scores that indicated the extent of the injuries they had sustained—such as the Abdominal Trauma Index, the Injury Severity Score, and the Revised Trauma Score—were all significant predictors of the outcome. According to the current study, the outcomes of individuals with abdominal injuries may be predicted using their unique histories and injury severity ratings.

Objective: The study examined the variables influencing the recovery of individuals with abdominal injuries.

Study design: A retrospective cohort Study

Duration and place of study: surgery department at MMC Mardan from January 2021 to January 2022

Material and Methods:- The surgery department at MMC Mardan conducted retrospective cohort research from January 2021 to January 2022. The study included 100 patients who were hospitalized at a trauma centre as a result of abdominal trauma. The patients' demographics, medical histories, trauma scores, and results were gathered from their medical records. The Abdominal Trauma Index (ATI), the Revised Trauma Score (RTS), and the Injury Severity Score (ISS) made up the scoring system. The results were categorized as either unfavourable (death or disability) or favourable (complete recovery and discharge).

Results: The evaluation assessed the patient's chances of success based on their trauma ratings, age, gender, and any comorbidities. Individuals with comorbidities or those over 55 were more likely to have unfavourable results. Patients with low scores were more likely to have an adverse result since a substantial link was found between the RTS, ISS, and ATI scores and the outcome.

Conclusion: The study indicates that trauma ratings and patient variables may be useful in predicting outcomes for individuals with abdominal trauma. More investigation is required to understand how these characteristics affect the course of treatment for this group of patients.

Keywords: Abdominal trauma, patient characteristics, trauma scores, outcomes, predictors

Introduction

Abdominal trauma is a major source of morbidity and death worldwide. Abdominal injuries cause up to one-third of trauma patients who are admitted to hospitals, and they account for 5% of trauma-related deaths1. Prognosis may be difficult to predict since a variety of variables, including trauma ratings, injury severity, and patient characteristics, affect how these individuals heal2. Therefore, understanding the variables that affect abdominal trauma patients' outcomes is essential to improving patient treatment and results. A cohort of fifty patients who received treatment for abdominal trauma at a trauma centre between 2015 and 2020 was analyzed to investigate the variables influencing the prognosis for victims of abdominal trauma3. Data on the patient's characteristics, damage ratings, and results were recorded and then carefully examined.

Interestingly, the study found that scores from injury-related tests like the Injury Severity Score, the Revised Trauma Score, and the Abdominal Trauma Index, as well as traits like age, gender, and pre-existing medical conditions, were significant predictors of patients' outcomes. An unexpected result was reached from this analysis: patient characteristics and damage ratings may be useful in influencing the course of treatment for patients with abdominal injuries. When it comes to detecting and treating injuries, the abdominal organ system is an exceptionally difficult and complicated field of medicine to practise.4. Abdominal trauma is still linked with significant rates of morbidity and death globally, ranging from 1 to 25% in affluent countries. Rapid identification of distinct anatomic damage patterns and their pathophysiological effects is essential for providing successful trauma therapy. Determining the appropriate plan of action for early diagnosis, categorization, and effective care requires understanding these aspects. Treatment for abdominal trauma ultimately mostly depends on prompt and efficient interventions. The treatment of patients with abdominal trauma may be improved by determining the variables linked to favourable results. Thus, the purpose of this research is to ascertain how trauma severity ratings and demographic characteristics affect the results. Researching these associations may provide knowledge that is valuable in the future, including possible cures and preventative measures6.

Material and Methods:

A retrospective cohort research was carried out at the MMC Mardan Department of Surgery from January 2021 to January 2022, sampling 100 patients with abdominal trauma who were hospitalized at a trauma centre. Medical records were used to collect data on the patient's demographics, medical histories, and injury scores, including the Injury Severity Score (ISS), the Abdominal Trauma Index (ATI), and the Revised Trauma Score (RTS). The final results were divided into two groups: favourable, indicating a complete recovery and release, and unfavourable, denoting a death or a handicap.

Data collection

Data was analyzed from medical records of patients at the trauma centre who had suffered abdominal injuries. Individual variables such as age, gender, and any other health conditions were included at the time of the data collection. The Abdominal Trauma Index, Revised Trauma Score, and Injury Severity Score were also considered in the trauma grading systems. In addition, patients either left the centre with a positive outcome—that is, a complete recovery and discharge—or a negative outcome, which implies they died or had a handicap.

Statistical analysis

The data was examined using SPSS software, version 22.0 of the Statistical Package for Social Sciences. They were using descriptive statistics, which allowed for a comprehensive overview to be provided. Using Pearson's chi-squared test, the study's result was associated with patient characteristics and trauma levels. In addition, a multivariate logistic regression model was used to assess how the covariates affected the independent effect of the research.

Results:

The findings of the research showed that the trauma ratings of the patients, in addition to their age and comorbidities, had an impact on their prognosis. The patients with inadequate results were those older than 55 and had comorbidities. Moreover, worse results were associated with poorer ATI, ISS, and RTS scores. Higher-scoring patients were more likely to have a successful result.

Table 1 Age distribution of abdominal trauma

Age Group	Frequency
20-30	48
31-40	24
40-55+	24
Total	100

Table 02 Etiology of abdominal trauma

Aetiology	Frequency
Blunt trauma	66
Penetrating trauma	34
Total	100

Table 03 Comorbidities of abdominal trauma

Comorbidity	Frequency
None	70
Diabetes	14
Hypertension	6
Chronic Obstructive Pulmonary Disease	4
Total	94

Table 04 Trauma scores of abdominal trauma

Trauma Score	Mean
Revised Trauma Score	07.07
Injury Severity Score	14.66
Abdominal Trauma Index	02.92

Table 5 Injury-to-intervention time

Intervention Time	Mean
Emergency Room	02.31
Operation	02.43
Total	04.72

Table 6 Injury severity score

ISS	Frequency
0-15	54
15-25	26
25-35	10
40+	10
Total	100

Table 7 Outcome of abdominal trauma

Outcome	Frequency
Favourable	74
Unfavorable	26
Total	100

Table 8 Presenting vital signs of survivors and no survivors.

Vital Sign	Survivors	No survivors
Systolic Blood Pressure	121.5	99
Diastolic Blood Pressure	70.5	63.5
Heart Rate	87.5	127
Respiratory Rate	36	20.5

Table 9 Presentation and intervention parameters and outcome (survival/death)

Variable	Survival	Death
Presentation GCS	12.3	8.2
Presentation SBP	121.5	99
Presentation DBP	70.5	63.5
Injury to intervention time	2.44	2.32

Discussion

Research indicates that age, gender, comorbidities, and trauma ratings are correlated with the outcomes of patients with abdominal injuries. Patients over the age of 55 are more likely to have adverse outcomes; in fact, the majority of deaths occur in this age range. Due to probable differences in health problems and bodily well-being between the sexes, females are also more likely than men to have poor outcomes at all ages7,8. Comorbidities were shown to be associated with unfavourable outcomes; the most common diseases were asthma, chronic renal failure, diabetes, hypertension, and cardiovascular disease. Patients with comorbidities are thought to be at higher risk because of the weakened physiological reserves brought on by these illnesses. There were noteworthy associations found between trauma ratings and patient outcomes. In this context, it was determined that the Abdominal Trauma Index (ATI), Injury Severity Score (ISS), and Revised Trauma Score (RTS) were significant9,10. It was shown that patients with lower test scores were more likely to have unfavourable outcomes. Out of the three, the ATI assessed the condition of the abdomen, while the RTS and ISS showed the extent of the damage. The trauma ratings linked with significant tissue damage indicated worse outcomes. This suggests that these people need more medical attention and care11,12.

Applying the study's findings may help identify those more likely to have negative effects, which justifies providing appropriate and sufficient medical treatment. Moreover, medical professionals may identify older patients who have comorbidities and have lower trauma-related scores and offer them enhanced medical treatment for their example13, 14. Putting these strategies into practice might improve outcomes for patients with abdominal injuries, especially for those who are more vulnerable to adverse effects. A recent study examining the factors that affect outcomes in people with abdominal injuries found some interesting results15. Interestingly, the patients' trauma markers—the Revised Trauma Score, Injury Severity Score, and Abdominal Trauma Index—when combined with their age, gender, and co-occurring disorders, were significant predictors of outcome. Individuals with comorbidities or who were older than 55 years of age were more likely to have a worse result than those without either of these characteristics16,17. Lower RTS, ISS, and ATI scores are directly associated with worse outcomes for patients who have had abdominal trauma. These patients' traits and the extent of their injuries may help forecast how they will do in the future. Further research is necessary to determine these parameters' role in predicting patient outcomes. Examining how interventions and therapies impact this patient population's health12 would also be beneficial.

Conclusion

According to this research, variables including patient features and trauma ratings may be crucial in predicting how people with abdominal trauma would do. Additional study is thus necessary to completely understand the relevance of these variables in influencing the outcomes for this specific patient population.

Limitations

Further research is required to bolster the findings because the study is retrospective, and the sample size is modest. Furthermore, memory bias or missing data could have impacted the study's findings. The results should be interpreted cautiously since just one trauma centre was involved.

Authors' Contributions

ASIF IMRAN: Literature Review, Manuscript Drafting.
AURANGZEB KHAN: Data Collection & Statistical Analysis.
ABBAS ALI RAZA: Data Interpretation,
SAAD ALI SHAH: Proof Reading
TAMJEED GUL: Manuscript Drafting
MUHAMMAD ISMAIL: Expert Opinion And Manuscript Revision

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