THE FULL MOON AND ADMISSION TO EMERGENCY ROOMS
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ABSTRACT

OBJECTIVE: The purpose of this study was to investigate an ancient hypothesis; the moon effect might increase incidence of injuries and hence admission of patients with trauma to Emergency Rooms (ERs) on full moon days.

METHODS: During thirteen months, 58000 trauma patients admitted in three hospitals that had the highest load of trauma patients in Tehran were studied. Due to lack of complete data, 3543 patients (6.1%) were excluded from the study, leaving 54457 cases for further analysis. We selected lunar calendar for our study, so dates of patients’ admissions were converted to lunar months and three day-periods with 15th day as middle day were defined as full moon days.

RESULTS: In our study the number of trauma patients was not increased during the full moon days against other days of lunar month. Statistical analyses of data didn’t exhibit a positive relation between full moon days and increasing of trauma patient admission to ERs. An association between assault and attempted suicide was not observed around the full moon days either. The results did not show significant reduction of GCS score of patients on full moon days and there was not any increase in severity of traumatic injury sustained during full moon days.

CONCLUSIONS: It seems necessary to conduct studies regarding the probability of moon effect through on different database, geographic areas and for appropriate periods in order to reach a conclusive result.

KEY WORDS: Trauma, moon effect, lunar calendar, full moon

INTRODUCTION

The moon has been always mysterious for human kind. Long before present time, there has been a persistent myth through the years called the lunar hypothesis. This simply means that the moon affects and alters human behavior, so resulting to more violence, suicides, accidents and aggression. Nowadays, we well know that the moon through the effect of its gravitational forces on the earth is the major regulator of tidal changes on great body of water throughout the earth, now it’s questioned: might moon gravitational forces exert a similar influence upon our body, resulting to change on our behavior. There are considerable disagreements about moon effect. In recent decades several studies have investigated this opinion, a few demonstrating positive correlations between the full moon and incidence of psychological crisis, suicide, child behavior disorders, accidents and injuries, the time of delivery, gutt attack, and so on. Correlation of medicolegal deaths and full moon over five years (1978 to 1982) with full moon days was examined by Thakar. The study showed a significant correlation between full moon days and medicolegal deaths; the study further showed a significant clustering of medicolegal deaths round the full moon, reaching a peak on the full moon day. Meanwhile many researchers did not support any communications between full moon and increase of medical crises. Coates et al, in a retrospective study during one calendar year did not find any correlations between the full moon and incidence of major trauma. The full moon occurs when the moon appears as a full cycle. That is the time when the maximal amounts of the sun’s light reflect off the moon surface and the moon appears circular and shining from the earth. In our study we investigated whether that there is an increase admission of trauma patients to emergency rooms during the full moon days.

MATERIAL AND METHODS

This is a retrospective study by using collected data during a data registry performed by Sina Trauma and Surgery Research Center (STSRC), in three hospitals (Sina, Shohada, Fayazbakhs) which had the highest load of trauma patients. During a period of thirteen months, 58000 trauma patients admitted to emergency rooms in three hospitals were recorded. Due to lack of completed data, 3543 patients (6.1%) were excluded from the study, leaving 54457 cases for further analysis and study duration limited to 12 months (from 15 June 1996 to 11 June 1997). The information of all patients who were visited at emergency rooms were entered to registry forms by trained physicians and the physician traced the patients until leaving the hospital. For performance of this study we were in need of doing two procedures; first converting of trauma occurrence dates to lunar calendar and second, definition of full moon day. In our country, solar calendar is in session. Of course; two other calendars (lunar month and the Christian calendar) exist and are used less frequently. We selected the lunar year for our investigation. Number of days in each month is almost constant in solar year or Christian calendar, but lunar year is different from others. The lunar year is based on moon turning around the earth that nearly lasts for 29 ¼ days, so each month might take 30 or 29 days and number of days for each month will change. Definition of full moon day is another important factor for these kinds of studies. In a few of studies 15th day of lunar month is defined as full moon day. According to some other studies, we regarded 15th day of synodic lunar cycle, in addition to a day before (14th) and a day after (16th) it, all together as full moon days. The ANOVA test was used for statistical analyses. P<0.05 was used as the level of statistical significance.

RESULTS

During 385 days, 54457 trauma patients were admitted to emergency rooms. Of the studied patients, 10888 (20%) were female and 43569 (80%) were male. The mean age was 28.11 years (range : 1 to 75 years). There were 12 full
moons and the same number for other days of lunar months with the exception of 30th day. During the data collection period, there were 8 months with 30 days and other five months had 29 days. In performing statistical analyses the ANOVA test was performed to investigate the relationship between full moon days and number of trauma patients, sex, Injury Severity Score (ISS) and GCS Score in the studied patients in one lunar year. The total number of trauma patients’ admissions did not increase during full moon days. From our patients, 5475 cases (10.05%) were admitted to emergency rooms on 12 full moon days (average 156.27 patients per days), compared with 48982 patients admitted on 319 non-full moon days (average 153.5 patients per day). Figure 1 illustrates the number of trauma patients’ admission according to days of lunar month in our study. Mean injury severity score of patients was not statistically different between full moon days and nonfull moon days. This study provides no support for an association between attempted suicide and assault presented around the full moon days (Table 1). Among males, females, or as a whole there was no lunar variation.

**DISCUSSION**

In most industrialized and developing countries, injuries represent a leading cause of death and a substantial source of disability and distress. So, identification of each subject with a positive or negative correlation to accidents could be important. Accident occurrence depends on several factors and moon influence might be one of them. In our study, we investigated the relationship of full moon and trauma patients by number, GCS, ISS, and gender. The statistical analysis of results didn’t support the influence of full moon on increase of trauma patients, admissions. In addition, we did not detect a significant relationship between moon effect and GCS score and injury severity score of trauma patients. This study provides no support for an association between attempted suicide and assault presented around the full moon days. Brynes reviewed 12 studies that had examined the relationships among crisis calls to police stations, poison centers, crisis intervention centers and the synodic lunar cycles. To sum up, his review of 12 studies produced no reliable evidence to associate crisis calls of various types to lunar cycles. Mathew analyzed 385 cases of attempted suicides presented to the Accident and Emergency Departments during 12 complete lunar cycles (one year). This study provided no support for an association between attempted suicide and lunar cycle, particularly the full moon days. Lavery examined nine years of traffic accidents involving damage to property (n=246,926 accidents) and involving nonfatal injuries (n=50,492). After adjusting of date for calendar effects, no relationship was found with the total or half synodic and anomalistic lunar cycles or between the waxing and waning synodic cycle. No sudden change on the day of the full moon or surrounding day was found. Coates reviewed 1444 trauma victims admitted to an urban level I trauma hospital during one calendar year. There was no increase in incidence or severity of traumatic injuries sustained during full moon periods. On the other hand, Ghiandoni reviewed a retrospective analysis of 1248 spontaneous full term deliveries in a three-year period (36 lunar months) showed a significant connection between the distribution of spontaneous full-term deliveries and the lunar month. Mikulecky also reported 126 gout attacks during 8144 days; the maximal occurrence of attacks coincides with the peaking lunisolar tidal effect.

**REFERENCES**

7. Thakur CP, Thakur B, Singh S, Kumar B. Relation between moon and trauma patients by number, GCS, ISS, and gender. The statistical analysis of results didn’t support the influence of full moon on increase of trauma patients, admissions. In addition, we did not detect a significant relationship between moon effect and GCS score and injury severity score of trauma patients.

**CONCLUSION**

With a glance through this research and the previous studies it is revealed that they have usually investigated a special aspect of probable moon effect in a rather limited population. Conduction of studies which include other data sources of health-related events (like psychiatric wards, police stations, ambulatory health departments/clinics) seems necessary to verify our findings.

**Table 1: Analysis of moon effect on number and severity of trauma patients**

<table>
<thead>
<tr>
<th></th>
<th>Full moon days</th>
<th>Other days</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>156.43 (45.88)</td>
<td>152.44 (35.90)</td>
<td>0.998</td>
</tr>
<tr>
<td>Number of patients with trauma</td>
<td>4.186 (2.623)</td>
<td>3.926 (2.541)</td>
<td>0.275</td>
</tr>
<tr>
<td>Glasgow Coma Scale of patients</td>
<td>14.919 (9.550)</td>
<td>14.921 (7.841)</td>
<td>0.926</td>
</tr>
<tr>
<td>Injury Severity Score of patients</td>
<td>2.50 (0.4331)</td>
<td>2.48 (0.4329)</td>
<td>0.839</td>
</tr>
</tbody>
</table>

Figure 1: Average number of trauma patients’ admission according to days of lunar cycle.
MINI LAPAROTOMY VERSUS CONVENTIONAL LAPAROTOMY FOR ABDOMINAL Hysterectomy: A COMPARATIVE STUDY

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ABSTRACT

BACKGROUND: Less traumatizing measures for hysterectomies are searched for to improve the recovery from surgery.

AIM: Comparison of minilaparotomy abdominal hysterectomy with conventional abdominal hysterectomy in respect to per-operative and post-operative outcome and complications.

SETTING AND DESIGN: In a medical college hospital patients undergoing abdominal hysterectomy were enrolled. It was a concomitant comparative study.

METHODS AND MATERIAL: We are presenting our comparative data of 100 cases of minilaparotomy abdominal hysterectomy (group I, incision =< 6 cm) performed over last 4 years from January 1998 to December 2002 and comparing the outcome with 99 cases of abdominal hysterectomy (group II, incision > 6 cm) done by traditional method over the same duration.

STATISTICAL ANALYSIS USED: Chi-square and Fischer test with significance of p value being taken at 0.05 were used for categorical data, while student's t test was used for continuous data.

RESULTS: Mean age and parity of patients were similar in the two groups. Incision was transverse in 100% cases in-group I and 22.2% cases in-group II. Estimated blood loss was significantly higher (354 ml) in group II in contrast to group I (240 ml). Blood transfusion was also required more commonly (22.2%) in-group II than in-group I (9%). Mean operative time was significantly more in-group II (90 minutes) than in group I (41 minutes). Mean hospital stay, day of mobility, starting oral diet and days of injectable analgesics required were higher in group II than in group I. Major complications were rare in both the groups, but minor complications were significantly higher in group II (40.4%) than in group I (26%).

CONCLUSION: Minilaparotomy abdominal hysterectomy appears to be an attractive alternative to traditional abdominal hysterectomy with fewer complications.

KEY WORDS: Hysterectomy, Minilaparotomy, Laparotomy, complications.

INTRODUCTION

Hysterectomy is a common gynecological operation with almost 20% of British women having undergone it by the age of 65 years. 

ERRATUM

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For article “Spontaneous reduction of posterior shoulder dislocation following repeated epileptic seizures” author's name N G ABY should read as ABY NG

The error is regretted.