

Seasonal Variation of Rectal Foreign Bodies: Data from Nationwide Inpatient Sample

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Abstract

Background: Seasonality is noted in various aspects of human behavior and functioning which have led to an increasing interest in their seasonality in the recent years. **Aims:** We aimed to examine the seasonal variation in the incidence of rectal foreign bodies in the US using a large inpatient database. **Methods:** We used the Nationwide Inpatient Sample database to identify patients aged ≥ 18 years admitted with a primary diagnosis of the rectal foreign body from 2009 to 2011. We used the Edward's recognition and estimation of cyclic trend method to study the seasonal variation of the incidence of rectal foreign body and Z-test to compare the seasonal incidences. **Results:** A total of 3359 hospitalizations with primary diagnosis of the rectal foreign body were reported from 2009 to 2011. The peak incidence of rectal foreign bodies was seen in October (peak/low ratio 1.20, 95% confidence interval [CI]: 1.10–1.32). **Conclusion:** Data on seasonal variation of rectal foreign bodies are extremely limited. Further studies would be required to verify whether our findings of a higher incidence in the fall season are reflective of acute changes in the length of the days, climate, sleep-wake cycle, or decreased sexual intercourse at this time of the year. High suspicion at this time of the year may help promptly diagnose and avoid unnecessary investigations.

Keywords: Nationwide Inpatient Sample, rectal foreign body, seasonal variation

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Introduction

Seasonality is noted in various aspects of human behavior and functioning which have led to an increasing interest in their seasonality in the recent years. Rectal foreign body insertion has been extensively described in the literature, with the earliest description dating back as long as the sixteenth century (Haft and Benjamin) and earliest case report published in 1919. The incidence is increasing^[1] with up to 589 cases reported in the literature, and many more unreported cases presenting to the hospital.^[2] A variety of human behaviors such as sexual gratification (most common), criminal assault or accident, and self-treatment of anorectal disease have been implicated.^[2,3] Various theories on the effect

of climatic changes including changes in air pressure, temperature, solar activity, and humidity have been postulated to affect human behavior and disorders relating to these.^[4] We aimed to examine the seasonal variation in the incidence of rectal foreign bodies in the US using a large inpatient database.

Methods

We used the Nationwide Inpatient Sample (NIS) database to identify patients aged ≥ 18 years admitted with the primary diagnosis of the rectal foreign body (International Classification of Diseases, 9th Revision, Clinical Modification code 937) from 2009

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to 2011. NIS is the largest publicly available all-payer inpatient care database in the United States and is sponsored by the Agency for Healthcare Research and Quality as a part of Healthcare Cost and Utilization Project. We used the Edwards recognition and estimation of cyclic trend method^[5] to study the seasonal variation of the incidence of rectal foreign body and Z-test to compare the seasonal incidences. Edwards's method was used to generate a fitted curve to a time series of monthly frequencies and generate the estimates of the seasonal intensity of occurrence (peak-to-low ratio).

Results

A total of 3359 hospitalizations with the primary diagnosis of rectal foreign body were reported from 2009 to 2011. The peak incidence of rectal foreign bodies was seen in October (peak/low ratio 1.20, 95% CI: 1.10-1.32) [Figure 1 and Table 1].

Table 1: Monthly distribution of rectal foreign body admissions, 2009-2011

Month	Number of cases with rectal foreign bodies (<i>n</i>)	Total number of admissions (<i>n</i>)
January	306	7,661,715
February	244	7,110,105
March	236	7,909,666
April	264	7,454,452
May	301	7,538,602
June	243	7,556,599
July	303	7,531,293
August	232	7,610,917
September	317	7,362,917
October	361	7,481,324
November	245	7,216,232
December	307	7,419,051

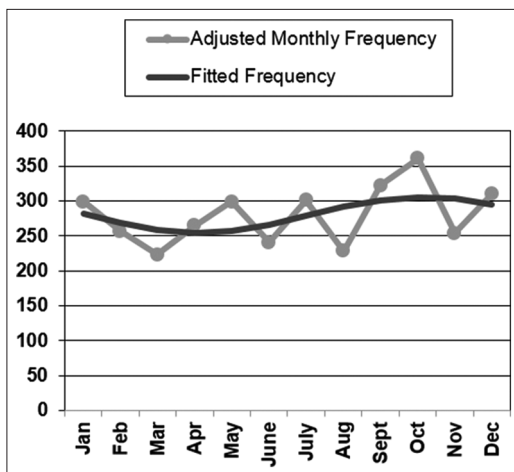


Figure 1: Seasonal trend for rectal foreign body admissions, 2009–2011

Discussion

Seasonal variation has been increasingly studied in various human behaviors. One of the first studied patterns was a higher number of suicides^[6] and hospitalizations for affective disorders^[7] described in the spring, followed by the fall. Similarly, the onset of affective episode in bipolar patient^[8] and use of electroconvulsive therapy^[7] were also found to be more common during the same time. Our study found the highest incidence of rectal foreign body admissions in autumn. Rapid changes in the length of the days might disturb the circadian and sleep-wake cycles and lead to disruptive behaviors in the at-risk individuals. Furthermore, interestingly, one of the studies found the highest frequency of sexual intercourse in spring and summer; and lowest frequency in winter.^[9] Whether rectal foreign body insertion as a means of sexual gratification occurs due to less sexual activity in the fall is a hypothesis that would require further study.

Conclusion

Data on seasonal variation of the rectal foreign bodies are extremely limited. Further studies would be required to verify whether our findings of a higher incidence in the fall season are reflective of acute changes in the length of the days, climate, sleep-wake cycle, or decreased sexual intercourse at this time of the year. High suspicion at this time of the year may help promptly diagnose and avoid unnecessary investigations.

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Conflicts of interest

There are no conflicts of interest.

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