ORIGINAL ARTICLE

Demographic Analysis of Intussusception in South East of Iran, 2005-2015

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ABSTRACT

Aim: Intussusception refers to the entrance of some part of the intestine into its adjacent lumen which causes ileus. The most prevalent abdominal emergency and the second most common cause of ileus is seen in two-year-old children; therefore, the aim of this study was to investigate the demographic information of patients with intussusception refer to Khatam-al-Anbiya and Ali-ibn Abi-Talib hospitals, Zahedan, Iran.
Methods: This descriptive and cross sectional study was carried out on patients with intussusception who refer to Khatam-al-Anbiya and Ali-ibn Abi-Talib Hospitals, Zahedan, Iran, 2005-2015. One-hundred and thirteen patients with different age, gender, the associated illness, the main complain of the patients, and referral season variables were enrolled in this study. The data was entered into the SPSS-17 software and indicated in the form of mean, standard deviation, and frequency data.
Results: The mean age of the patients was 23.61±28.71 months, 57.5%of the patients were under 1-year-old and 62.8%of patients were male. 75.2% of the patients did not mention the associated illness with intussusception. The main complain of 31.9% of the patients was abdominal pain, and 3.5% of them had other complains. The most prevalent and the least referral prevalent seasonswere summer and winter, respectively.
Conclusion: The results of this study indicated that gender, age, and main complain based intussusception prevalence. Therefore, special attention should be paid to the prevention of intussusception factors in male patients under 1-year-old. Moreover, there should be continuous efforts in educating different groups, such as surgery and pediatric groups, in order to improve scientifically and experimentally along with all the world.
Keywords: Demographic Characteristics, Pediatric, Intussusception

INTRODUCTION

Intussusception refers to the entrance of some part of the intestine into its adjacent lumen which causes ileus. Those kind of illnesses which appear in all the ages, even in fetal age, are reported; these illnesses cause intestinal atresia in later ages. However, the most prevalent abdominal emergency and the second most common reason for intussusception is observed in under two-year-old children[1,2].

More than 90% of these illnesses have no pathologic reasons (such as polyps, lymphoma, or meckel's diverticulum). The idiopathic reasons can be the secondary hypertrophy of lymphatic tissue of the intestine against viral infections; moreover, there is a positive association with adenoviral infections. The highest prevalence of the illness is observed in the middle of summer and winter. In most of the cases, the hypertrophic plaques play the role of a stimulator[3]. There are some mechanical factors, such as meckel's diverticulum, polyps, Henoch-Schonlein (Hematoma of all the walls), and intestinal lymphoma which are so prevalent in more than 1-year-old patients[4].

The males/female ratio of is 3/1. The most prevalence is observed in 5-9 month old children and 80% of the patients are under 2-year-old[5,6]. In most of the cases, intussusception is in two Ileococcal and Ileococcus forms with the minimum prevalence of Ileoyale form[7]. The symptoms of intussusception are ileus, inflammation of near each other walls, edema and consequently, reduced blood circulation. The serious symptoms of intussusception are ischemia, perforation, peritoneal inflammation, and shock[8].

The traditional embodiment of intussusception is a 3-12 month old children crying from a sudden abdominal colic pain. The natural reaction of these children are screaming and crying with pulling the

knees toward the chest. This pain is so severe with some normal intervals. In the primary levels, the child vomits. Faces state is normal and soft, but it resembles a sausage in right and upper quadrants. In some intervals (for several hours), a raisin gelatin like faces (a combination of blood and mucus) is observed and the abdomen becomes sensitive and flatulent[9]. Sometimes, dark blood and sometimes light blood can be observed in the faces which results in shock and anemia[7,8].

This illness has three traditional symptoms; sausage and gelatin like faces are the main symptoms in 15-20% of the children[9]. Maryam Ghavami Adel et al (2005),reported the percentage of colic pains, vomit and dysentery to be 96%, 85%, and 53%, respectively. A combination of these three symptoms is observed in 10-30%of the patients[10]. Nowadays, the diagnosis is done based on Para clinical measures, such as simple abdominal graphs, perforation, peritonitis, shock, and even death within a few days[10].

Treatments should be done within 12 to 24 hours. Immediate treatments are intravenous fluids, fasting, barium enema, and surgery[11]. Although surgery is required in most of the cases, nearly 10% of the patients who underwent surgery with intussusception diagnosis had intestinal vascular problems. Recurrence percentages after non-surgical methods is 10%, and after surgical methods is 5%[12].

Correct and quick diagnosis of intussusception of infants and their immediate referral can cause their treatment and prevention their mortality[12]. Therefore, in the first place, we should determine the prevalence of this illness in the area in order to take the necessary decision. On the other hand, based on the mechanical factors such as meckel's diverticulum, polyps, Henoch-Schonlein (Hematoma of all the walls), and intestinal lymphoma, we decided to analyzed the mechanical factors on intussusception prevalence and also seasons with high viral infections.

MATERIAL AND METHODS

This descriptive-cross sectional study is carried out on all the patients of Khatam-al Anbiya and Ali-ibn Abi-Talib hospitals of Zahedan – located in south east of Iran –, 2005-2015. The standard methods of intussusception diagnosis were taken into consideration. The entrance indicator was the definite diagnosis of intussusception. The data were processed with SPSS Version 17 software. The data are analyzed to frequency, standard deviation, and descriptive-statistical data.

RESULTS

In this study, 113 patients with intussusception profiles were enrolled. The studied patients had mean age of 23.61 ± 28.71 months. Among them, 71 patients (62.8%) were male, and 42 patients (37.2%) were female. Among 113 patients, 65 ones (57.5%) were under 1-year-old, and 13 ones (11.5%) were between 1 to 2-year-old, 12 patients (10.6%) are between 2 to 3-year-old, and 23 ones (20.4%) were higher than 3-year-old. Main complain of the patients with Intussusception have been shown in table 1.

Moreover, among 113 studied patients, 28 ones (24.8%) mentioned the associated illness, and 85 ones (75.2%) did not mention associated illness. Among these 28 patients, 6 ones (21.4%) have upper respiratory tract infection, 6 ones (21.4%) have gastroenteritis, 4 ones (14.2%) have dysentery, 4 ones (14.2%) have previous profiles of intussusception, 3 ones (10.7%) have Henoch-Schonlein Purpura (HSP), 1 patient (3.5%) has ectopic testis in right inguinal, 1 patient (3.5%) has autism spectrum disorders (ASD), 1 patient (3.5%) (16-year-old boy) has small intestine wall tumor, and 1 patient (3.5%) has rickets.

The highest amount of Intussusception prevalence based on referral season was observed in summer and the lowest amount is observed in winter (table 2).

Table 1: Main complain of the patients with Intussusception

Main complain	Frequency	%age
Abdominal pain	36	31.9
Restlessness	35	31
Diarrhoea	19	16.8
Vomit	19	16.8
Others	4	3.5
Total	113	100

Table 2: Intussusception prevalence in the patients based on their referral season

Season	Frequency	%age
Spring	29	25.7
Summer	36	31.9
Fall	29	25.7
Winter	19	16.8
Total	113	100

Discussion

Intussusception is one of the most important factors of severe intestine ileus in infants. World Health Organization (WHO) reported that this illness in developed countries has a prevalence of 0.5 to 4.3 cases in 1000 births, 1.2% to 66% in 1000 under

one-year-old children in South America, 24% in Venezuela, and 35% in Brazil[13].

In the present study, 113 patients with intussusception profiles were analyzed and it was revealed that the prevalence of this illness is higher in boys; these results are consistent with the results of most of the studies[14,15].

Chen et al conducted a study in 2007 in Taiwan and analyzed epidemiologic intussusception among 7541 patients. Their results indicated that prevalence ratio of male to female increases from 1.31 in the first year of life to 2.52 in the 9th year of life[14]. Farshidmehr et al, analyzed the predicting factors of a successful barium enema for intussusception in Alzahra hospital of Isfahan, Iran. among all the 45 studied patients, 10 ones were female and 35 ones were male[15].

Hesaraki et al,analyzed the value of clinical and radiological findings in the primary diagnosis of intussusception in Hormozgan, Iran,among 160 studied patients, 63.1% were male and 36.9%were female[16]

Regarding prevalence, children under 1-year-old have the highest prevalence percentage; this result is consistent with other studies[17]. However, in the recent years, with the use of Rotavirus vaccine, intussusception prevalence was reported in lower ages as well[18,19].

The most significant symptom or complain in the patients was abdominal pain, this complain is reported in most of the reports[14,16,20].

The highest prevalence was observed in summer, which is consistent with previous studies. So that illness prevalence is higher in hot seasons rather than cold seasons[14,21]. The relationship between seasonal changes and intussusception prevalence is mostly connected with the seasonal peak of gastroenteritis (17). In the present study, gastroenteritis is more prevalent in hot seasons, therefore, intussusception prevalence increases.

CONCLUSION

The results of this study indicated that intussusception prevalence, based on age and gender, is consistent with the results of most of the studies. Therefore, more attention should be paid to intussusception factors in lower than 1-year-old children, mostly in boys. Moreover, there should be continuous efforts in educating different groups, such as surgery and pediatric groups, in order to improve scientifically and experimentally along with all the world.

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