

Emotional Disturbances in Children Hospitalized with Infectious Mononucleosis

Elda Skenderi¹, Gjeorgjina Kuli-Lito², Alberta Shkemi³

¹Pediatrician, "General Pediatric Disease Ward" University Hospital Center "Mother Tereza" Tirana Albania

²Professor, Pediatric Infectious Disease Ward University Hospital Center "Mother Tereza" Tirana Albania

³Psychologist "General Pediatric Disease Ward" University Hospital Center "Mother Tereza" Tirana Albania

Abstract: *Infectious Mononucleosis is an acute infectious disease caused by Epstein-Barr virus (EBV). It is characterized by systemic somatic complaints consisting primarily of fatigue, malaise, fever, sore throat, cervical lymphadenopathy and accompanied by atypical large peripheral blood lymphocytes. Anxiety disorder includes concern and excessive unhappiness or unrealistic over multiple life circumstances, where the individual predict that something dangerous or distressed will happen, things that he will not be able to control. The aim of this study is to explore emotional disturbance in hospitalized children infected with EBV. Hypothesis. Children with more severe clinical manifestations of IM show higher levels of anxiety. Method: In this study are included 35 children of age group (6-12y) infected with EBV hospitalized in Pediatric Infectious Disease Ward during 2010-2014. The instruments administrated in the study are 1) Clinical data: fever, pharyngitis, lymphadenopathy, hepato-splenomegaly, hospitalization period. 2) State trait anxiety inventory of children (STAIC). Results: Data analysis through SPSS resulted in higher levels of anxiety in children with more severe clinical manifestations. 54% of children resulted with high levels of anxiety (29-40) score, 26% resulted with moderate levels of anxiety(14-28) and 20% showed low levels of anxiety. Conclusion: The results of the study confirmed the hypothesis. There is a statistically significant relationship between the severity of clinical manifestations and anxiety. Recommendations: More attention should be paid towards emotional changes in children with infectious disease. Psychological wellbeing of young patients demands a good cooperation between medical staff and pediatric psychologist.*

Keywords: anxiety, hospitalization, Infectious Mononucleosis, Epstein-Barr virus, infection

1. Introduction

Infectious Mononucleosis is the name chosen from Sprunt and Evans in 1920 for an acute infectious disease consisting of fever, cervical lymphadenopathy and pharyngitis accompanied by atypical large peripheral blood lymphocytes (Sprunt, 1920). Infectious Mononucleosis was recognized as a unique disease in the 1880s by Nil Filantov, a Russian pediatrician (Filantov, 1904). Epstein-Barr virus (EBV) was discovered in 1964 by electron microscopy of suspension cultures of African Burkitt lymphoma cells (Epstein et al., 1964). Four years later EBV was linked to Infectious Mononucleosis which is its most common clinical manifestation (Henle et al., 1968). The characteristic atypical lymphocytes which are carefully described morphologically by Downey and McKinlay (Downey et al., 1923) are actually activated CD8+T cells (Callan et al., 1996), which are responding to EBV- infected B cells (Callan et al., 1998). Infectious Mononucleosis represent a significant health risk because of the severity and duration of the acute illness and also because of the potential for long-term complications such as certain cancers and autoimmune diseases.

EBV is one of the eight known herpesviruses. Initial infection is thought to occur in oral (tonsillar) compartment, the host cells are mainly lymphocytes and epithelial cells (Kieff et al., 2007). The number of infected B cells decreases over time after the onset of symptoms of primary infection (Hadinoto et al., 2008), but these cells are never eliminated entirely. It is thought that one in a million B cells carry the EBV genome in an individual after recovery from acute infection (Bornkamm et al., 2001).

EBV can infect anybody, the disease occur worldwide with no seasonal predilection. Young children most likely acquire primary EBV infection from close contact that involves exchange of oral secretions via shared items such as toys, bottles and utensils. Before the age of 10, primary infection is usually asymptomatic or produce an acute illness that is often not recognized as being due to EBV (Sumaya et al., 1975). In adolescents and young adults, primary EBV infection frequently presents as Infectious Mononucleosis (Sprunt et al., 1920). EBV has also been acquired from blood (Gerber et al., 1969), indicating that the virus present in peripheral circulation, most likely in memory B cells (Hadinoto et al., 2008), is or may become infectious. Other ways of transmission is from transplanted hematopoietic cells (Alfieri et al., 1996; Shapiro et al., 1988) or solid organs (Hanto et al., 1981), such infections can be life threatening, especially in patients who were naïve before transplantation (Paya et al., 1999).

Primary EBV infection occurs at a younger age among persons from lower versus higher socioeconomic backgrounds (Fisher et al., 2004; Lehane, 1970), which has been attributed to crowded living conditions (Sumaya et al., 1975). Healthy people continue to shed EBV for many months after their acute infection and are potentially capable of transmitting it (Balfour et al., 2005; Kafi-Kremer et al., 2005). For the most part, shedding becomes intermittent rather than continuous several months after primary infection. Infectious Mononucleosis most often begins insidiously, with vague malaise, followed several days later by fever, sore throat, swollen posterior cervical lymph nodes and fatigue. Some patients experience an abrupt influenza-

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like onset with fever, chills body aches, and sore throat (Evans, 1978; Grotto et al., 2003; Hoagland, 1960; McKinlay, 1935; Rea et al., 2001). Hepatitis, documented by abnormal liver tests, is seen in 80% of cases so should be considered part of acute disease rather than a complication. The mean duration of Infectious Mononucleosis is 16 days, which is much longer than the duration of most other acute viral illnesses. Recovery is gradual, and it may take months for the patient to feel entirely well (Rea et al., 2001). Fatigue interferes with quality of life and is usually the last symptom to resolve. The risk of developing Infectious Mononucleosis after primary EBV infection correlates with the age of the patients (Henke et al., 1973). Children younger than 10 years are usually asymptomatic or moderately ill, with a partial Infectious Mononucleosis syndrome, although classic Infectious Mononucleosis can occur in this age group (Ginsburg et al., 1977). Primary EBV infection among adolescents and young adults may also be asymptomatic, but at least half of them develop full blown Infectious Mononucleosis.

Very few patients with Infectious Mononucleosis experience complications, which may be due to tissue-invasive viral disease or autoimmune mediated damage. Many complications have been associated with Infectious Mononucleosis but nearly all of them are uncommon or rare: airway obstruction, meningoencephalitis, hemolytic anemia, thrombocytopenia, rash (Jenson, 2000; Robinson, 1988; White et al., 1985). The most feared complication is capsular splenic rupture which occur at a rate of 0.5% of cases in adults, the rate in children is unknown but is probably much lower.

Aim

The aim of this study is to explore emotional disturbances in hospitalized children infected with Epstein-Barr virus

Hypothesis

Children with more severe clinical manifestations of infectious mononucleosis show higher levels of anxiety.

Method

In this study are included 35 children of age group (6-12years) infected with EBV hospitalized in Pediatric Infectious Disease Ward during 2010-2014. The instruments administrated in the study are:

- 1) Clinical data: fever, pharyngitis, lymphadenopathy, hepato-splenomegaly, hospitalization period.
- 2) Anxiety was identified by State Trait Anxiety Inventory of Children STAIC for self report of anxiety of the child. STAIC contains 20 situations which define how the child feels in general. The answer to this situations are built according to Likert scale which has three options : never, sometimes, often.

2. Results

Data analysis through SPSS resulted in higher levels of anxiety in children with more severe clinical manifestations. 54% of children resulted with high levels of anxiety, 26% resulted with moderate levels of anxiety and 20% showed low levels of anxiety.

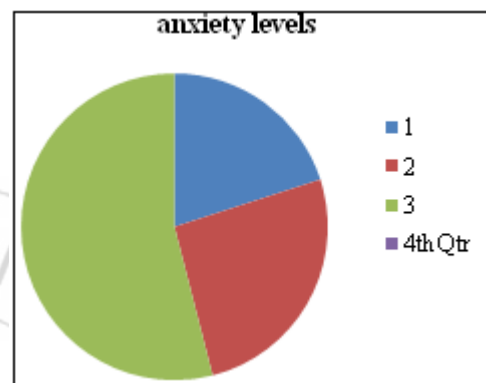
Explanation to the following graphics

- 1) Low levels of anxiety 0-13 scores
- 2) Moderate levels of anxiety 14-28 score
- 3) High levels of anxiety 29-40 score

Table 1: Data of anxiety levels in the studied group

	Frequency	Percent	Cumulative percent
1	7	20	20
2	9	26	46
3	19	54	100
Total	35	100	

Graph: Anxiety levels in studied group



3. Discussion

Hospitalization or inpatient care is the most restrictive form of treatment. The experience of being hospitalized for a illness is usually a traumatic and anxiety –producing one, particularly for children. Anxiety is a natural human reaction and it serves an important biological function, it is an alarm system that is activated whenever we perceive danger or a threat. Anxiety is a normal part of childhood and every child goes through phases which are temporary and usually harmless. Anxiety disorder includes concern and excessive unhappiness or unrealistic over multiple life circumstances, where the individual predict that something dangerous and distressed will happen, things that he will not be able to control.

Hospitalized children and their parents have to cope with a variety of stressors, which include factors directly relevant to the illness or injury such as physical discomfort, loss of autonomy, absence from school, the effects of medications and changes in family interactions. Aspects related to the hospital can provoke anxiety including the strange surroundings, separation from family and friends and unusual often painful medical procedures. Children have been reported to show a variety of negative behavioral and emotional reactions at some point during a stay in hospital. These have ranged from temporary distress to chronic depression and have included agitated behavior, anxiety, withdrawal, enuresis, phobia, altered sleep patterns and appetite problems (Connolly et al., 2004 Papaqostas et al., 2003; Peterson & Mori 1988). For some children these reactions last long after they leave hospital (Quinton & Rutter, 1976) although for most the effects appear to subside in the weeks soon after discharge (Thomson & Vernon, 1993). Doctors and psychologists have examined the factors that influence these reactions.

A longer duration of hospitalization can increase the likelihood of negative reactions, longer stays are likely to be associated with factors such as more serious health condition and higher levels of medical interventions (Rennick et al, 2002). Previous medical experience too influences the following admission (Yap, 1988).

The extent of negative reactions of illness in children is related to levels of development. Young children are more likely to report anxieties and exhibit greater behavioural distress in medical situations than older children (Dahlquist et al 1994; Melamed & Riedley- Johnson 1988). Each developmental period has vulnerabilities that influence how stressors are perceived and responses are manifested (Vessey, 2003). Generally younger and less cognitively developed children are less likely to understand the cause of pain (Bush, 1987), are less able to understand medical procedures and hospitalization (Eiser & Patterson, 1984), are less likely to seek out information about impending medical procedures (Peterson & Toler, 1986), but are more likely than older children to have frightening and guilty misconceptions regarding hospitalization (Redpath & Rogers, 1984). Younger children are likely to exhibit more symptoms of distress when pain and illness occur (Rudolph et al, 1995), have more externally oriented locus of control beliefs about illness (Sanger et al, 1988) and engage in fewer coping behaviours during medical procedures (Manne et al, 1993). Even very young children have the ability to achieve a sophisticated level of understanding of their illness, provided the information is given in a manner and form that is relevant to their level of understanding (Rushforth, 1999).

Illness severity is another factor that influences the reactions of child patients and their families to hospitalization. There are a variety of coping styles but is usually a dominant pattern characterized by approach or avoidance behaviours. Patients who predominantly approach or active copers, seek out information, consider it, and attempt to prepare themselves for the procedure. Whereas more avoidant patients or avoiders tend to reject information deny stress and attempt to focus on thoughts unrelated to the medical intervention (Martelly et al, 1987; Myers, 1995). Active copers have been found to be more co-operative with hospital staff and to have higher tolerance for pain (Siegel, 1981). Behaviours associated with positive adjustments include active information seeking and exploration of the medical setting, but might also include deliberate avoidance or distraction (LeRoy et al, 2003).

A crucial factor in child's response to medical events is the reaction of the parents. Parents often perceive their own anxiety as greater than that of the child (Ogilvie 1990). The anxiety of parents might not always be obvious, even when it is extreme. When a parent expresses negative reactions to child's illness or hospitalization, this is likely to impact on the child's ability to cope (DuHamel et al, 2004; Melnyk & Feinstein, 2001). Behaviours with a more emotive emphasis have been linked with children's poorer responses to the stress of hospitalization.

4. Conclusion

The results of the study confirm the hypothesis. There is a statistically significant relationship between the severity of clinical manifestations in hospitalized children with infectious mononucleosis and anxiety. Illness severity is an important factor that influence the reactions of child patients and their families to hospitalization because it is accompanied by longer periods of stay, more physical discomfort and higher levels of medical interventions.

5. Recommendations

More attentions should be paid towards emotional changes in children hospitalized with infectious disease. Pediatricians and psychologists have become increasingly aware that illness and hospitalization can threaten a child's mental and emotional development. Psychological well-being of the young patients demands a good cooperation between medical staff and pediatric psychologist.

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