

Asthma is a form of chronic airway disease and an enduring condition, which affects the breathing pattern of a person and one of the major reasons behind poor health among the children and the adults that affect their quality of life ("Asthma (AIHW)", 2016). This essay strives to illustrate the pathophysiology and major clinical presentations of asthma by considering the given case scenario of Steven, a 15years old Indigenous Australian boy, who was diagnosed with asthma when he was 2years old. Later, the essay would also focus on the role of the nurses in providing relevant care to the adolescents and their family members considering the present Australian nursing practices.

In asthma, airflow restriction is recurrent due to multiple changes within the airway of the affected individuals. As mentioned in the case study, shortness of breath is one of the most common clinical manifestations of asthma. Narrowing down of airway or bronchoconstriction is a major physiological event in asthma that affects the subsequent airflow. Contraction of the bronchial smooth muscles occurs rapidly that further narrows down the airways while expose to various stimuli that include irritants or allergens. Allergen-induced bronchoconstriction stems from immunoglobulin-E (IgE)-dependent secretion of the mediators from the mast cells, which include tryptase, histamine, prostaglandins and leukotrienes. These mediators contract the airway smooth muscle directly (Camargo Jr., Rachelefsky, & Schatz, 2009). Frieri, (2005) in this regard, have mentioned that the mechanisms that regulate the airway responses are not adequately defined, however, the responses seem to be related to basic airway inflammation. As the inflammation progresses asthma becomes more tenacious and associated factors limit the airflow, which include edema, mucus plugs, mucus hypersecretion, hyperplasia and hypertrophy of the smooth muscle of the airways. These changes are difficult to manage with usual treatments. Inflammation plays a crucial role in the pathophysiology of asthma. The inflammation of the airways involve interaction of multiple cell types and mediators and subsequently, gives rise to the characteristics of asthma: airway restriction and bronchial inflammation causes repeated incidents of wheeze, cough and thereby, shortness of breath. Berg, (2006) opined that the pattern of inflammation does not depend upon the severity, duration and persistence of the disease. But, the response of structural cells and cellular profile are rather stable. It is evident that activation of mast cells support secretions of bronchoconstriction mediators like prostaglandin D₂, cysteinyl-leukotrienes and histamine. Allergen activation takes place through high-affinity IgE receptors and sensitized mast cells are activated by the osmotic

stimuli due to exercise-induced bronchospasm. Brannan, (2010) stated that elevation in the number of mast cells is linked with airway hyper-responsiveness. In the presence of less number of allergens, mast cells could release good amount of cytokines in order to change the surrounding of the airways and increase inflammation. Cytokines modify and direct inflammatory responses in asthma and thereby, determine its intensity. Helper T cell 2 (Th2) derived cytokines, especially the IL-5 is necessary for the survival and differentiation of the eosinophils, IL-4 and IL-3 are important for the cell differentiation and IgE formation respectively. Certain major cytokines like the tumor necrosis factor- α and IL-1 β intensify the inflammatory response that prolong the survival of the eosinophil within the airways.

Nurses play a crucial role in managing symptoms in order to alleviate the disease complication. To achieve that nurses should understand the pathophysiology of the illness and have an insight of patients' developmental stage, age and other related factors that would help them to offer individualized care or patient-centered care. Evans, (2016) opined that children's physical maturity and overall development are different from the adolescents that influence the healing process, medication metabolism and pathophysiologic processes. As mentioned in the case study, Steven is a 15 years old boy and thus, belongs to the adolescents group, where the social, cognitive, physical and personality developments vary from childhood. Certain developmental indications include voice change, growth of facial hair, increase in weight and height and so on (Fineman, 2015). Boys generally attend their puberty around 13-16 years of age and the level and activity of the pituitary secreted hormones are increased (Turner, 2012). Nevertheless, these changes and hormonal alterations in the adolescents affect their accomplishments and behavior, while they are busy developing their personal identity (von Salisch, Zeman, Luepschen, & Kanevski, 2013). This requires tremendous social and psychological support and nurses play a crucial role in this regard by ensuring patients' privacy while providing healthcare and respect their ethnical identity (Souza, Neves, & Borba, 2013).

Two growth and development theories would be good fit for the given case study: the Erikson's theory of psychosocial development and the Piaget's theory (Inhelder, De Caprona, & Cornu-Wells, 2013). As mentioned in the Piaget's theory, the thought processes of the adolescents during the formal operational period could be considered as progressively systematic, abstract, mature, reflective and logical (Santrock, 2011). This shows that the youngsters could take their own life decisions and thereby, they need to be involved in their care plan. Hence, adolescent is considered as an important age group, where they become

cognitively and physically mature. As per the Erikson's theory of psychosocial development, the adolescents provide major attention to their identity formation, search for self-identity that gives rise to sense of independence from their parents and sometimes increases reliance on their peers (Fineman, 2015). This could be sometimes life-threatening as adolescents are swayed away by the peers. A prominent example in this context would be peer pressure to smoke, alcohol consumption and substance misuse that affect the health of the adolescents to a greater extent. It is evident that almost 70% of the young Australian adolescents, who are affected with asthma are also massive smokers (Turner, 2012). Hence, it could be mentioned that Steven should be educated by a care professional, who could teach him about how asthma is affecting his health and also encourage him for smoking cessation. Berg, (2006) has mentioned that educating adolescent patients on a particular illness promote better understanding that further help them to improve their quality of life.

Family-centered care is also important while caring for the adolescent patients. This is because parents or the family members are immediate and primary point of contact for the adolescents, which requires that the family members pose better knowledge and understanding about their adolescent children. This type of approach is effective as it include partnership building among the care professionals, family members and the children (Santrock, 2011). Transparent communication with the patents about their children's care concerns highlights the significance of building trust and rapport (Souza, Neves, & Borba, 2013). The fundamental factors of family-centered care consider family as culturally responsive and stable support. Based on Steven's case, it could be mentioned that Steven and his family should receive proper care and should be provided with the opportunity to access necessary healthcare resources. Evans, (2016) stated about inadequate report on the customs, values and lifestyle of the Aboriginal and Torres Strait Islander and their effect on healthcare practices. Berg, (2006) mentioned that health care professionals, who look after the Aboriginal and Torres Strait Islander in Australia should be empathic, culturally sensitive, acknowledge Indigenous family structure, community, land, health and family history. Hence, family-centered care is a basic part of multidisciplinary team, where health related and other concerns that affect the quality of life are successfully solved.

Hospitalization positively and negatively affect both the child and family. Positive side of hospitalization is that it promotes patient care and make people understand why seeking medical advice is important. Alternatively, hospital admission could increase stress on individuals, inadequate support of which could affect the quality of life of the children and their family members (McIntyre, 2013). Sometimes it is seen that family members experience

anxious due to the situation that leads to hospitalization. In this regard, Camargo Jr., Rachelefsky, & Schatz, (2009) stated that getting involved in child care and being more informed enable parents to reduce their stress levels. On the other hand, lack of awareness among the parents could affect their children's health. Family members' role may be altered when parents need to distribute their work responsibilities and equally take care of their other children, negligence of which could affect the health of their other siblings. So, it is important that the healthcare professionals support and encourage parents to access healthcare resources to meet their needs and demands. The adolescents and their parents could be introduced to other members of same age and suffering from same health concerns, where they can discuss and share about their experiences and concerns. This could further help them to understand about the disease progression, effective coping strategies and healthy life-style choices. This provides better health outcomes (McIntyre, 2013). Not only that, the adolescents and family members are referred to other relevant health professionals like nutritionist, physiotherapist and so on, which ensure provision of better healthcare. The nutritionist could develop proper diet chart for the asthma affected adolescents that would boost their immunity power and save them from rapid weight loss by rejuvenating body cells. Light aerobic exercises would help the patients to be active and focus more on daily living activities instead of getting deprived day-by-day, due to a long-term illness. While individuals are living with an enduring disease, it is the healthcare professionals' responsibility to teach them with coping mechanisms so that they have survive well for the rest of their lives without compromising the quality of their life.

To conclude, it could be mentioned that Asthma is a chronic respiratory illness that affect the health and wellbeing of affected individuals. The health care professionals should be supportive and help these patients to access adequate care related resources to meet their healthcare needs to a greater extent. The care professionals should provide culturally competent care and maintain equality in the healthcare system. The care professionals should make the adolescents and their family members understand the importance of family-centered care that could help them to maintain their health and wellbeing throughout their lives. As, adolescents is a transition phase, they should be provided with additional guidance and care so that they are not feel deprived, while affected with a long-term illness. With the help of Piaget and Erikson's developmental theory, this essay has strikingly illustrated the relevant aspects of care for asthma.

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