

Management of poor nutrition in child



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In each phase of life, human beings have specific dietary needs. During the first six months of life an infant acquires all its dietary needs from either breast milk or formula milk (Department of Health, 2005, p2). However after the age of six months it is important that the infant begins to complimentary feed in the form of a well-balanced diet that has the correct macro/micronutrients for optimum growth and development (Morgan & Dickerson, 2003, p234). This part of the assignment will critically discuss the benefits of a well-balanced diet for the growing and developing infant. This will be undertaken with regards to the scenario given.

The scenario is about a ten month old infant girl called Jasmine. She has been admitted to hospital for initial management of poor growth and malnutrition. The term malnutrition refers to both under-nutrition and over-nutrition. However, for the purposes of this essay the term malnutrition will be used for the term under-nutrition. Malnutrition can result from too little or the wrong kinds of food, or can be secondary to an underlying illness. Signs of malnutrition include short stature, thin arms and legs, skin and hair in poor condition, clearly visible vertebrae and rib cage, wasted buttocks, and in extreme cases, oedema, wasted facial appearance and lethargy (RCN, 2006, p30). Jasmine is still being fed on formula milk; however she has not be successfully weaned onto a solid diet. Delayed weaning can lead to slower growth and deficiencies in nutrients such as iron, zinc, fat soluble vitamins and fatty acids (EUFIC, 2000, p2).

Adequate calorific intake is required for the infant's growth, digestion, physical activity and maintenance of organ metabolic function.

Carbohydrates are very important in the diet of a young infant as babies

have only small hepatic glycogen stores and have a limited ability to carry out both gluconeogenesis and ketogenesis. It is recommended that carbohydrates should make up at least forty-four percent of the infant's total calorific intake (Turner, 2001, p572). Similarly, fat should make up around fifteen percent of an infant's calorific intake. It is needed to provide energy and essential fatty acids, required for growth and tissue maintenance.

As mentioned dietary fat is an important part of an infant's diet. Infants need energy to enable the enormous growth of the first year and also facilitate high activity levels. Therefore, it is suggested that they require an energy-dense diet. Although this can be provided by carbohydrates, fat has almost twice as many joules of energy for weight than carbohydrate. As well as the energy component of fat in the diet, the infant requires the essential fatty acids for correct development of the nervous system (Livingstone, 1997, p9). It has been suggested that the lack of essential fatty acids may explain why malnourished children consistently achieve lower intellectual level, compared with their well nourished counterparts (Walker *et al.*, 2007, p146). It is important to note however, that studies into this issue have methodical limitations that affect the results of the studies. The research had only a very small cohort of children, who had other psychosocial problems apart from being under-nourished. It is argued therefore that the findings can not be generalisable to all under-nourished children. Essential fatty acids can only be obtained from lipids (oils and fats) in the diet. Fat is also a source of the fat-soluble vitamins A, D, E and K, each of which is needed by the infant to some degree. In very young infants the lack of vitamin D may produce

hypercalcaemia and or hypocalcaemia convulsions alongside poor quality bone growth, resulting in rickets. Dietary vitamin D can be obtained through fish, cream and cheese (Morgan & Dickerson, 2003, p315).

Iron is another nutrient that is particularly important in an infant's diet. By the age of six months, iron from foetal stores, breastfeeding or fortified formula milk is no longer sufficient to meet the infant's demands. It is during this period of rapid growth and a simple weaning diet that dietary intake of iron may be insufficient to maintain normal haemoglobin. Therefore, infants need to be consuming significant amounts of iron in their diet. Iron is found in red meats, fish, liver and some leafy green vegetables. Absorption of iron can be enhanced by Vitamin C and intake of protein in the same meal or inhibited by phytates in cereals, legumes and tannins in tea and coffee (Neill & Knowles, 2004, p162). Therefore, it is essential that Jasmine eats foods that have sufficient iron for her needs, in meals that have the correct amount of protein and Vitamin C. Iron-fortified infant cereals, alongside pureed iron-rich foods are a good start to the weaning process.

Iron is essential to all cells. It is so important that the body has evolved specific mechanisms for its absorption, transportation and recycling. Iron is a mineral found in every cell of the body. Iron is considered an essential mineral because it is needed to make part of erythrocytes. The human body needs iron to make the oxygen-carrying proteins haemoglobin and myoglobin. Haemoglobin is found in red blood cells and myoglobin is found in muscles. Iron also makes up part of many proteins in the body. Haemoglobin is a protein found in erythrocytes that helps to transport oxygen around the body.

Lack of iron in the diet can lead to iron-deficiency anaemia (IDA). IDA is characterised by falling haemoglobin levels and increasing problems with breathlessness with ultimately, high output cardiac failure. Infants over the age of six months with IDA, which at this stage is primarily dietary in origin and which can develop slowly may reach extremely low levels of haemoglobin before any problem is diagnosed. Clinically, iron-deficient infants are often miserable, apathetic, with poor appetites and negative behaviours (Morgan & Dickerson, 2003, p309).

Besides calcium that is needed for the healthy growth of bones, another micronutrient that is important in an infant's diet is zinc. Zinc has been found to be deficient, even in generally well-nourished infants. Zinc is an essential mineral that is found in almost every cell. It stimulates enzyme activity (substances that promote biochemical reactions the body). Zinc also maintains a healthy immune system, is required for wound healing, assists in sustaining the sense of taste and smell, and is necessary for DNA synthesis. Zinc also supports normal growth and development during pregnancy, childhood, and adolescence. Mild deficiency can lead to dermatitis, gingivitis, diarrhoea and loss of appetite. If the deficiency is severe and persistent this may lead to “ failure to thrive” and neurological changes. Meat is a useful source of zinc, alongside dark green, leafy vegetables (Coutts, 2000, p2206).

Infancy is a critical period for growth and development. After the first six months of life, babies can no longer acquire their nutritional needs from breast or formula milk alone. Weaning is the term used when solid foods begin to be introduced into the diet alongside milk feeds. From the evidence given, it appears that infants are at risk from certain disorders, diseases and

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delays in growth and development if certain macro/micronutrients are absent or deficient in the diet. It is essential therefore, that growing infants are given a well-balanced diet, which promotes and maximises the chance of the child having a long and healthy life.

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Essay question 2

The biological sciences in nursing curricula encompass anatomy, physiology, biochemistry, immunology, pharmacology, genetics and microbiology, a group of disciplines frequently referred to collectively as the biosciences (McVicar & Clancy, 2001, p1415). This kind of scientific knowledge consists of facts, information, principles and theories. Debatably, in nursing, it includes evidence-based research findings and conceptual models of nursing, as well as research findings in other disciplines such as psychology, physiology, pharmacology and genetics. It is proposed that having this scientific knowledge base can help nurses describe, explain and predict (Wilkinson, 2007, p41). It is important to note that the study of biosciences and the specific study of child anatomy and physiology should go hand-in-hand with the social science of nursing and care so that a fully holistic approach to care and nursing is undertaken (Richardson, *et al.* , 2001, p34). This will then empower and enable the paediatric nurse to give best-practice care that is person-centred and family-centred. This part of the assignment will discuss how knowledge of biosciences informs practice and contributes to the ability to meet both the nursing and dietary needs of Jasmine in a family-centred manner.

It is proposed that understanding the biological influences on development allows for a better understanding of what possible errors may occur. With regards to nutrition, it is suggested that a paediatric nurse needs to know

how various nutrients help the anatomical and physiological development of an infant. Jasmine has been admitted to hospital for initial management of poor growth and under-nutrition. It is suggested that it is a multi-disciplinary responsibility to ensure that Jasmine's nutritional needs are met, and paediatric nurses have particular areas of responsibility and expertise (RCN, 2007, p2). These occur at all levels, entailing screening, assessing, planning, implementing, evaluating and monitoring the delivery of evidence based care that meets the nutritional and hydration needs of Jasmine.

It is argued that, the ability to assess an infant's nutritional status using anthropometry, observation and history is vital, but it is also as important for the paediatric nurse to have an understanding of the implications of information gained during an assessment. It is debated therefore that this is when knowledge of the biosciences is of particular importance. For instance, anthropometry, the measurement of the human body, can give useful information about growth and current nutritional status when compared with established norms. Here, knowledge of normal child anatomy and physiology is important so that any differences can be recognised. It is important to note however, that an assessment of nutritional status or growth should not rely on these measurements alone. Consideration must also be given to other factors, such as feeding history (Khair & Morton, 2000, p2).

It is debated that, knowledge of the biosciences if used with knowledge of psychosocial and environmental influences on health within a nursing context, will enhance patient care. Just relying on the importance of biological influences and not taking into account external influences on health can said to be "reductionist". Arguably, reductionism in any form will

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lessen the quality of care. When taking into account external influences on health, the nurse in charge of Jasmine's care must involve the family in the education of Jasmine's nutritional needs. It is proposed that the greatest influence on a child is the family. Debatably, the infant's experiences within the family have a considerable effect on their health, social and emotional development and these influences are not always positive. It is suggested that, there may be problems of poverty and deprivation in Jasmine's family and the paediatric nurse must have knowledge of other professionals who can give help and guidance to the family (Ross, 2003, p37). Arguably, in this way the family can learn together in partnership with other health and care professionals such as dieticians, social workers, psychologists, etc.

From the evidence given, knowledge of biosciences when used in conjunction with other nursing care concepts can help paediatric nurses influence future health risks by educating families on the necessity of a well-balanced diet. However, nurses must first acquire an understanding of how nutrients affect a body's growth and development. This understanding, alongside multi-disciplinary team work will provide the best holistic care possible.

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