

The study of celiac disease



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This paper explores five articles concerning the inflammatory auto-immune disease, gluten-sensitive enteropathy (commonly referred to as Celiac Disease). The information addressed includes the pathophysiology of CD and its epidemiology. The paper will also discuss signs and symptoms of the disease, treatment both in general and pre-hospitally, and the social and ethical considerations one may encounter when treating a Celiac patient. The focus of the article is the paramedical treatments of the auto-immune disease and how to provide the best patient care possible.

The Study of Celiac Disease and Its Effects on Paramedicine

What is Celiac Disease?

Celiac Disease is an autoimmune inflammatory disease that affects the small intestine. It is ultimately an inability of the body's digestive system to properly handle the protein Gluten (found in wheat, barley, and rye). Celiac Disease is not, however, an allergy to Gluten as explained by Nelson Jr., (2002) " Patients who exhibit true allergy to an ingested protein (e. g., milk or soy protein) have a typical IgE-mediated response...The autoimmunity in gluten-sensitive enteropathy involves plasma cells that produce IgA and IgG; there is little or no IgE involvement." As a result when a Celiac patient consumes a product containing gluten they trigger an inflammatory enteropathy damaging the villi of the intestinal tract (Guthrie, & Gettis, 2008, Pg. 24). The intestinal villi are the main location at which nutrients are absorbed from the intestinal tract into the body. When these villi are damaged the patient can suffer from severe malabsorption and malnutrition despite the amount of food he or she eats. If left untreated Celiac Disease can lead to a cocktail of serious medical conditions.

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Who Has Celiac Disease?

Also called gluten-sensitive enteropathy, nontropical sprue, or celiac sprue it was once thought to be a rare condition, but it is now "estimated one of every 100 to 200 people in the United States has celiac disease" (Guthrie, & Gettis, 2008, Pg. 24). According to PubMed Health, Celiac disease is most frequently seen among Caucasian, European descendents and more common in women than men (Dugdale, III, Longstreth, & Zeive, 2010). "In a recent U. S. study, 11 investigators tested sera from 2, 000 healthy Red Cross blood donors and found eight samples that were positive for antibodies associated with gluten-sensitive enteropathy (seven samples from white persons, one sample from a black person)" (Nelson Jr., 2002). Nelson (2002) also acknowledges the genetic factor involved with Celiac disease and states that a person with a first-degree relative who has Celiac Disease is 10-20 percent more likely to develop it as well. No age of onset has been set for Celiac Disease because symptoms have been recorded first occurring "from infancy into late adulthood" (Dugdale, III, Longstreth, & Zeive, 2010).

Celiac Disease and Paramedicine

Anyone with experience in Paramedicine or whom simply has basic knowledge of human anatomy can understand the sheer number of differential diagnoses to consider when the pathophysiology of a disease is an abdominal abnormality. In fact, there is no way for anyone to definitely diagnose this type of patient pre-hospitally. With this in mind it is important to have an open mind taking into consideration all of the information provided to in the patient assessment, have a strong index of suspicion, and treat the patient's signs and symptoms.

Signs and symptoms of Celiac Disease are different in each person often slowing the diagnosis process even in a doctor's office. The A-typical Celiac patients often have abdominal pain, bloating, gas, indigestion, constipation, appetite changes, diarrhea, nausea, vomiting, lactose intolerance, unexplainable weight loss, and fatty stools. Fatty stools can suggest a high index of suspicion of malabsorption and " typically are large in volume, malodorous (foul smelling), greasy, light tan or light grey in color, and tend to float in the toilet bowl. Oil droplets (undigested fat) also may be seen floating on top of the water" (Smith, 2007). Some other signs and symptoms of Celiac Disease are anemia, easy bruising, peripheral neuropathy, and infertility (Smith, 2007) as well as depression, nosebleeds, delayed puberty, missed menstrual periods, muscle and joint weakness and/or cramps, mouth ulcers, hair loss, itchy skin, or seizures (Guthrie, & Gettis, 2008, Pg. 24). There are also patients who have Silent Celiac Disease and show no signs or symptoms of the often until the intestines are nearly destroyed.

It is also important to note that those with Celiac Disease are more likely to have other diseases such as: Autoimmune disorders like rheumatoid arthritis, systemic lupus erythematosus, and Sjogren syndrome, Addison's disease, Down syndrome, Intestinal cancer, Intestinal lymphoma, Lactose intolerance, Thyroid disease, and Type 1 diabetes (Dugdale, III, Longstreth, & Zeive, 2010). All of these disorders and diseases present with their own set of medical concerns when assessing and treating a patient pre-hospitally thus emphasizing treating the signs and symptoms. Consider this scenario, a Celiac patient who is also an insulin dependent diabetic may eat a slice of pizza for lunch and take his or her insulin as prescribed, but because of the

adverse effects of the gluten in the intestinal tract may not be able to absorb any glucose and become hypoglycemic. Hypoglycemia is a serious medical condition and must be addressed rapidly or it can be fatal.

" Celiac Disease has rightly been said to be 'tricky to find, hard to treat, impossible to cure'" (Frasano, Troncone, & Branski, 2008). The only true treatment for Celiac Disease is a one-hundred percent Gluten-free diet and GVD does work. According to Frasnano, Troncone, & Branski (2008) patients 1 year post diagnosis who had kept to a strict GFD showed a considerably decrease in malignancy and risk of mortality. This does beg the question, however, that if GVD is the only treatment for Celiac how then do Paramedics provide proper care for Celiac patients? Treat life threats. Treat signs and symptoms. As pre-hospital providers we may know from patient history that they have CD, we may simply have a high index of suspicion, or we may not know at all. Recall the diabetes scenario with the Celiac patient. The most important aspect of that call is to manage airway, breathing, circulation, and reverse the hypoglycemia before the patient goes into a seizure or worse cardiac arrest. If the patient is presenting with severe abdominal pain and fatty stools then the appropriate treatment plan may be Oxygen therapy, IV pain medication such as Morphine and an anti-emetic such as Phenergan to reduce nausea caused by the Morphine. If the patient presents with seizures then the treatment plan may be 2mg of Valium to stop the seizure, check blood glucose levels, Oxygen therapy, and possibly an airway maneuver to secure a patent airway. That is how every patient should be treated. How is the patient presenting? What are the signs and symptoms? What are the immediate life threats and how can they be stabilized?

What is the patient's chief complaint and how can it be treated? These are the questions that the Paramedicine provider asks no matter who the patient or what the disease process.

However, it is still important for a paramedic to have an understanding of the human body and pathophysiology. It is the detailed report given to the Doctor by the Paramedic that paves the road for his or her initial differential diagnoses and if you as a paramedic can paint a picture showing a high index of suspicion for Celiac Disease that patient may receive the proper testing to lead to a definitive diagnoses and treatment plan sooner. All in all paramedics can help provide the best patient care for those with Celiac Disease by addressing life threats and chief complaints while depicting an adequate portrayal of the signs and symptoms for the Doctor in order to help he or she consider Celiac as a potential definitive diagnosis.

Some social and ethical considerations with Celiac patients lie mostly with undiagnosed cases. One such issue would be the teenage girl with a drastic unexplained weight loss despite eating a lot of food. One may question whether she is suffering from an eating disorder called Bulimia which involves bingeing and purging. Another ethical consideration is the child who appears malnourished and has more bruising than is normally expected for a child his age. Is there abuse in the home or is there an underlying condition? A social consideration to consider is the Celiac patient who has been diagnosed, but just wants to have a good time with his friends and in order to not stand out or be difficult eats a bowl of pasta at the Italian restaurant knowing full-well he should be maintaining a Gluten-free diet. Are the symptoms worth it to some people in order to fit in? These are all issues to

consider when treating patients. Remember not to narrow down differential diagnoses too soon, but take the time to properly assess the entire situation.

In conclusion Celiac Disease is becoming a more prevalent disease in the United States and can have a major impact wreaking havoc not only on the small intestines, but ultimately on every system of the human body, but it can be controlled with a Gluten-Free diet as well as with treatment of the signs and symptoms. It is the responsibility of pre-hospital providers to address life threats and the patient's chief complaint as well as gather enough information to formulate a high index of suspicion that he or she can pass to the Emergency Room Doctor. In doing so the patient care of the Celiac patient will be more streamlined and adept.