

Multiple sclerosis essay

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Multiple sclerosis Multiple Sclerosis is a neurological disease whose etiology and cure are yet to be determined. Research today is focused on slow viruses(those with a long latent period), as well as gamma globulin(γ -globulin) and immuno-globulin(IgG), which are frequently found in the spinal fluid of sufferers. Although no genetic link has been established, some studies have shown greater occurrence among siblings, and even among distant relatives.

Even the possibility that Muscular Sclerosis(here forward called MS) is an autoimmune disease has not been ruled out. What information is known is that this devastating disease usually occurs between the ages of 20 and 50 years of age, and more often inflicts those who live in northern climates. Women are inflicted twice as often as men. The importance to the family unit as a whole, and the economic system in general, is that MS attacks people at the times in their lives when they are most productive, i.

e. providing for themselves, providing for a spouse and/or children, meeting financial obligations that are now solely theirs, etc. The effect of this devastating neuro-muscular disease is deterioration along many locations of the white matter of the brain stem, spinal cord, optic nerve, and cerebrum. Every nerve in the body is insulated by what is called a myelin sheath.

This myelin sheath is likened to the plastic coating on electrical cords. MS destroys the myelin sheath. As the plastic cord on a piece of electrical equipment insures the current flows to the device, the myelin sheath that insulates human nerves insures that the nerve impulses(themselves electric currents) are conducted, unhampered, from nerve to nerve onto their

intended final destinations. The healthy myelin sheath insures the nerve impulses reach their intended locations, thus allowing normal neuro-muscular function. Presently, there are 2, 000, 000 cases of diagnosed MS in the world.

7 However, diagnosis is often missed or delayed due to the nature of MS itself - remitting and recurring symptoms. During remission of symptoms, sufferers rejoice in the symptom-free period, reassuring themselves that they are normal. Many times they neglect medical follow-up. Like-wise, physicians miss proper diagnosis because they may not be privy to all the patient's prior symptoms; or, doctors may consider the large number of fleeting symptoms or the patient's emotional instability to be an indication of neurosis. The full impact of this disease can be brought home in quite simple terms: This age group, if you are among it, includes not only yourself, but also most likely both your parents, your siblings, all of your friends, and even your children.

Anyone can be inflicted with MS any time during this time period, regardless of which hemisphere of the earth they live. Although the severity of degeneration and recurrence pattern of symptoms vary from patient to patient, the following are common bodily functions that are progressively affected by ever-increasing foci of degeneration that cannot be repaired.

- urinary frequency and urgency
- constipation
- Impaired vision, blindness, spots, diplopia(double vision)
- changes in muscular coordination, affecting gait
- tremors
- fatigue
- weakness or numbness of particular body parts
- emotional

instability· disorders of speech, such as scanning(see end note below)· severe muscle spasms, contractures, difficulty swallowing, and spastic ataxic gait are other symptoms, which may occur. 1 Excepting muscle spasms, MS is painless. Death does not arise from any of the aforementioned symptoms, but usually occurs due to respiratory infection or genito-urinary system infection, both exacerbated by loss of muscular control. 1When respiratory infections are the cause of death in MS sufferers, the patient is unable to effectively clear the breathing passageways by moving secretions up out of the lungs, up the bronchi, and out the trachea. Their attempts are ineffective without a strong, productive cough. This inability to do so is a result of myelin sheath destruction on voluntary nerves that control the muscles associated with the respiratory system, namely those involved with expansion of the chest and lungs.

Since the electrical impulse cannot travel to these voluntary muscles with full effectiveness, pleural secretions continue to collect, remain stagnant, and lead to infection. Eventually, drowning in secretions occurs. When urinary tract infections are the culprit, the infection has occurred due to inability of the bladder to empty properly(called urinary retention), failure of the urinary sphincter to completely close,(thus letting in bacteria), or a combination of both. Infections may travel to the kidneys, and sepsis may occur. Sepsis results when the infection crosses into the circulatory system. Drugs may be unable to control the septic shock, thus resulting in a progression of shutdown of major organs.

Death will result. The National Multiple Sclerosis Society was founded in 1946. Their mission, clear and concise, "is to end the devastating effects of MS,"⁷ presently affecting two million people worldwide. The number of undiagnosed MS victims is unknown. This society "supports more MS research, offers more services for people with MS, provides more professional education programs, and furthers more MS advocacy efforts than any other MS organization in the world."⁷ Presently, Novartis, a pharmaceutical company that has lead the way in development of neuroscience drugs for 50 years (for such diseases and illnesses as Alzheimer's, ADHD, schizophrenia, migraine, epilepsy, and Parkinson's disease), is about to begin Phase III of a trial of a new drug for MS. This new drug, presently named FTY720, has proven itself more than promising in the first two phases of its trial.

⁵The oral medication has relieved the fear of needles, as well as removed the cause for infections at injection sites, which encouraged 92% of the participants to participate in the third trial. Clearly, if trial 3 fairs as well as the first two, compliance with the new pill, once marketed, should be expected. ⁵FTY720 is an immunomodulator. Immunomodulators are drugs that have an affect on the immune system. These drugs are either immunosuppressants or immunostimulators. ⁶ FTY720 is an immunosuppressant.

As such, the drug suppresses the actions of lymphocytes (types of white blood cells), whose duty it is to travel the circulatory system in search of invaders in the form of infection and foreign bodies. When intruders are

found, the lymphocytes engulf and destroy the infected cells or foreign bodies. These white blood cells attack the myelin sheath in MS sufferers, thus lending some credence to the autoimmune disease theory of MS.

5FTY720 is a receptor-modulator, in fact the first modulator of its kind, i. e., a sphingosine-1-phosphate (S1P) receptor modulator.

Receptor sites on the surface of the lymphocyte would typically recognize the myelin sheath as a foreign body and seek to attach to it in MS patients.

Instead, these receptor sites are bound by FTY720, thus disabling the leukocyte from attaching to the myelin and causing lesions. 5 Extraordinary

findings from Phase II study of FTY720· Relapse rates were reduced by

55% in those receiving 1. 25 mg doses· Relapse rates were reduced by

53% in those receiving the 5. 0 mg doses· Length of time to the next

confirmed relapse was lengthened in both groups· 86% of those in both

treatment groups remained without relapse for 6 months· The total

number of gadolinium enhancing T1 MRI lesions(previously

presentLesions)were reduced by 80% in those taking the treatment for 6

months· New lesions, called T2 MRI lesions, were reduced by more than

two-thirds inboth FTY720 dosage groups. 5 Prior to development of FTY720,

all other drugs were administered by injection only and were plagued by

patient fear, injection site complications, flu-like symptoms, and necessity for frequent administration(even daily or weekly).

These earlier infectables resulted in an average reduction of relapse rate of

only 30%. This average 30% reduction rate holds nothing on the newfangled

FTY720, for it is a pill with nearly three times better results. The side effects

of FTY720 being minor infections and treatable symptoms, i. e., headache, GI distress, shortness of breath and cough, most participants agreed to continue with Phase III. 5 Novartis is so confident in the trial findings to date, that they refer to the future marketing of this drug with descriptions such as, “ the first of several new and exciting,” “ innovative approach,” 5 in their news releases. People wanting to participate in Phase III (if found to qualify), may sign up to do so by visiting Novartis’ website at [http://www.](http://www.pharma.us.novartis.com/)

[pharma.us.novartis.](http://www.pharma.us.novartis.com/)

[com/](http://www.pharma.us.novartis.com/). COMMUNITY SERVICE PROJECT The community project proposed is to sell t-shirts at all NFL home games in the city. T-shirts will both advertise and educate. All funds will be donated to Novartis, the leader in development of drugs for many neurological and neuro-muscular diseases for the last 50 years. COMMUNITY SERVICE PROJECT (Cont’d): In particular, donations will be made to Novartis for their development of FTY720, the promising drug that increases the time between relapses more than 2-fold that of any prior drugs — offering less severe side effects as well!! 5 I. Problem: Muscular Sclerosis remains without a cure A. Despite treatment modalities for Muscular Sclerosis, it remains without a cure. II.

Assessment: Continued research and development and trials are necessary A. A continual flow of funds is necessary for continuation of trials and development of new drugs. III. Interventions: A. Organize a sale of t-shirts at the NFL home games in the city for the benefit of Muscular Sclerosis patients. B. Contact a vendor who can provide the t-shirt sizes, colors and designs you choose, at the lowest possible cost to your group.

Request a reasonable number of shirts for the first game, basing all further purchases upon your success at each preceding game. i. T-shirts will advertise the website for The National Muscular Sclerosis Society. ii. T-shirts will have a “catchy” and memorable phrase on the front of the t-shirt to motivate the desire to learn more about this disease, i. e., ‘How many people in your world will have MS by 2010?’ C. For further educational purposes, attach to each t-shirt a 4” X6” piece of card stock paper with the MS facts you wish to communicate to your customers.

Please see the sample card on page #11. D. Contact the football facility for approval i. Procure a highly visible area for your sales to be held before and during the game. ii. Request that your sale be announced by the facility before the game starts and during half-time, including purpose of the funds raised. iii. Prepare this announcement yourself (considering time restraints and limits set by the facility) to insure all pertinent points are relayed to the audience.

iv. Procure approval for sales outside of the football stadium, covering as many entrances as possible given the number of salesmen available. 3.

Interventions (Cont'd): E. Contact the NFL team owner with the complete business plan i. Inquire if he will donate to your cause, either by lump sum or matching your sales.

ii. Inquire if the team logo may be used on your t-shirt. iii. Contact the appropriate local/city government entities to insure all legal paperwork is in order to exhibit and sell the t-shirts. F. Contact The National Muscular Sclerosis Society for the following: i. To outline the purpose of the sale.

ii. To inform them of your intent in donating funds to Novartis. iii. For input on your t-shirt design, including approval for the website address and phone number. iv. As a general courtesy for all other issues they may want to address. H. Contact Novartis with information on the following: i.

To outline your sale and its purpose. ii. To inform Novartis of your intent to donate all proceeds at the end of the football season. iii. To inquire of any special procedures required to donate the funds. iv. To request, upon delivery of funds, a letter of intent from Novartis to use these funds strictly for further development of FTY720 or other drugs to lessen the severity of symptoms or cure the disease. I.

Insure well in advance of the games that you have enough supplies at each sale site, i. e., tables, cash box, enough people to man each station, chairs, t-shirts marked with size, etc. 4. Implementation of the Interventions (Sale): The team is ready to have their first sale at Game #1 of the your city's NFL team. The team would have allowed enough time to follow through with the preparatory interventions listed above, insuring that all needs for a successful sale are met. Hopefully, you have gained the support and promised donation of the NFL team owner. The NFL owner's approval of the team logo on the t-shirt will have been attained before Game #1.

5. Evaluation of Results of the Novartis Sale Completion of sales at Game #1 will now allow you to assess your aptitude as salespersons, both individually and as teams located at the individual sites around the stadium. 5.

Evaluation of Results of the Novartis Sale (Cont'd): Collectively, all volunteers will meet as a team to review any problems or needs encountered during

this first occasion to sell. This “meeting of the minds” must occur after each successive game and sale. Thus, through this problem solving and planning, sales will hopefully increase with fewer problems.

Evaluation of your group’s monetary success after each game will guide you in determining how many t-shirt and card-stock papers you will need to buy and prepare for the next home game. At this point, strategies will be developed to increase sales expectations for the next game. Utilizing the plan above after each game will better insure that your sales increase with each successive game. At season end, the following criteria will measure your success:

- Are you in the black?
- Were you left short-handed due to no-show volunteers and broken promises to see the season through?

- Was there excessive conflict among volunteers, or did everyone do his best to focus on the goal?
- Were you diligent in implementing important changes discussed by the team after each successive game and sale?

- Are you left with an abundance of t-shirts?
- Can the t-shirts be used another season?
- Do you think the time commitment this season-long sale required was worth the final sum of money you have to offer Novartis?

- Are you secure in your agreement with Novartis on allocation of the funds?; if not, renegotiate with Novartis for a more concise agreement on paper.
- Can you define success as the love and effort put forth for 2 million suffering people, or must success be measured as a specific dollar amount? Additional criteria to consider: As the developer, your hope is that all volunteers who participated consider this an overall success; but, in all likelihood, the volunteers will have a range of feelings on how well the season and sales went, and whether or not they would participate in such an

event again. Novartis is a large corporation through whose doors likely passes billions of dollars each year. Although the money raised may seem paltry in comparison, your donation is also an offering of love, time, and dedication to the human race.

In the case of costly research and development, every little bit does count. Additional criteria to consider(Cont'd): Through advertising you have reached everyone who reads each wearer's t-shirt as he passes by, meets with friends for lunch, gathers with family on the weekend, sits in a college class, attends Bible study, shoots basketball with the girls or guys.....

Success can be measured each time someone 'clicks' on The National Muscular Sclerosis Society's website as a result of your project. You've given more than money. You have given the opportunity to endless numbers of people to be educated about themselves and their loved ones. In summary, Muscular Sclerosis is a disease for which there is yet no clear etiology; however, long viruses, autoimmune influences, and the presence of globulin(γ -globulin) and immunoglobulin(IgG) in cerebral spinal fluid(CSF) are good indicators the disease is present. Diagnosis is difficult to make, but inclusion of the patient history and neurological exam with the CSF findings lead toward diagnosis.

1 One of the latest tests included in the diagnosis of MS is the visually evoked responses test that identifies optic nerve damage, a finding often present in early stages of MS development. MS affects 2, 000, 000 diagnosed people at this time worldwide. The subjective nature of diagnosis, hampered by fleeting symptomology and a false sense of " I'm o. k.

since I can see without spots now, i. e.," as well as false diagnoses of neuroses, leave many people untreated.

With the Novartis drug FTY720 having completed two phases in the trial with flying colors, we may very soon have this drug on the market. What a pity to have this completely new treatment modality available, yet undiagnosed people who cannot benefit from its powerful new ways of reducing lesion size and number, reducing lengths of time between relapses, and reducing the severity of side-effects. Diagnosis is important so all can have an improved quality of life. In short, the project to raise money for further drug development by Novartis seems the best way at this time to contribute to ever-improved drugs and possible cures for the many of millions who are yet to be affected in our lifetimes. Unfortunately, it could be one of us, our neighbor of 20 years, one of our parents, one of our sisters or brothers, one of our children, or even a best friend.