



Plasmapheresis: A form of treatment for Myasthenia Gravis

Apheresis is a procedure that is used in the treatment of patients with a variety of illnesses. The term apheresis comes from the Greek origin meaning “removal of”. All apheresis procedures involve removing components from the blood. Efficient apheresis procedures have been developed over the last 15 years.

The four basic components of blood are red blood cells, white blood cells, platelets and plasma. When one of these four components is abnormal in content or quantity, it can be removed by an apheresis procedure. **Plasmapheresis** is a form of apheresis that involves selective removal of the patient’s plasma which is then replaced by special intravenous fluids.

Myasthenia gravis (MG) is the best example of a condition which can be successfully treated using plasmapheresis in addition to oral medications. The exact cause of MG is not known, but it is known that certain antibodies present in the patient’s plasma cause interference at the nerve-muscle junction. In other words, the nerve and the muscle are not communicating properly and this leads to muscle weakness.

By removing plasma and replacing it with a “plasma substitute”, it is possible to relieve some of the symptoms of muscle weakness. The best way to understand plasmapheresis is to think of it in terms of a continuous withdrawal of a small amount of blood, and then having that blood continuously returned without the antibodies that were causing the symptoms.

A more detailed look at plasmapheresis will explain what may be expected. Starting the day before, drink plenty of non-caffeine containing fluids so that blood pressure drop during the treatment is minimized. Coffee, tea and other caffeine containing liquids should be avoided for 24 hours pre-treatment due to their diuretic action. Eat a well balanced meal before coming for the procedure.

The procedure itself begins with the insertion of a needle into a vein in each arm. Once the needles with connecting tubing are inserted, blood is withdrawn from one arm to flow into the apheresis machine. Once in the machine, the blood is separated into various components allowing for easy removal of the plasma and antibodies. The remainder of the blood components, red cells, white cells and platelets, are then combined with sterile plasma substitutes and returned through the other arm. Most patients have veins which allow easy blood withdrawal. However, if veins are too small for an adequate blood flow, your physician will discuss with you other options that are available to make it easier to perform this procedure.

The time needed to complete a treatment usually ranges from one and one half to three hours. During the entire procedure qualified medical professionals will be with the patient to monitor the treatment and to make sure the patient is comfortable. After treatment is completed, a cold drink will be offered and the patient will rest for a short period of time.

Some circumstances may require hospitalization for the procedure, while others permit this procedure to be done on an outpatient basis; this is dependent upon the patient’s condition. If the patient is going

home after the treatment, a friend or relative should usually accompany him/her since the patient may note fatigue.

Questions:

The following are questions about the plasmapheresis procedure that patients have asked in the past.

1. **Will this procedure be painful?**

The patient is awake and without pain throughout the procedure, and often chooses to watch television, etc. as the procedure is performed. However, some pain may be experienced at the insertion of the needles.

2. **Will any side effects occur during this procedure?**

The patient should report any unusual symptoms if they occur. Some patients feel tingling or numbness in the lips or fingertips. This is caused by a substance which is added to prevent the blood from clotting while it is in the machine. If this feeling is experienced, tell the medical staff about it. The tingling or numbness can usually be quickly relieved. Some patients may feel light-headed or slightly nauseated. This feeling is usually very brief. If this occurs, tell the medical staff for this symptom can also be alleviated. Lastly, bruising or swelling may occur at the needle puncture site.

3. **When can improvement be expected?**

In general, it takes 3 to 5 treatments before most patients with myasthenia gravis experience improvement. However, some patients will need more than 5 treatment before improvement is evident. The doctor will be able to explain the particular course of treatment.

4. **How often will treatment be needed?**

The doctor can best answer this question. Initially, some patients use this procedure on a daily basis, while others use it every other day. Occasionally patients may require long-term therapy on a weekly or semi-weekly basis. Frequency of treatment is individualized for each patient.

5. **Should medications be continued before and during a plasmapheresis treatment?**

Patients should continue with their regular medications unless directed otherwise. Patients taking pills to lower their blood pressure may be asked to hold their dose prior to plasmapheresis. The patient should bring all medications to the apheresis unit so that they may be recorded on the chart.

Important Points to Remember

1. Have a well balanced meal and plenty of non-caffeine containing fluids before the treatment.

2. The treatment will probably last from one and one half to three hours
3. Qualified medical personnel will be in attendance throughout the entire treatment.
4. If any symptoms are experienced, be sure to tell the medical staff so the symptoms can be relieved.
5. There will be a period of rest after the treatment ends.
6. Since the patient may be fatigued, a friend or relative should accompany him/her.
7. Avoid hot food and beverages for at least 2 to 3 hours after treatment. They dilate the blood vessels and light-headedness may occur.
8. Avoid sun and heat on days of plasmapheresis especially if the weather is humid. Hot showers and saunas should also be avoided.
9. Activities such as shaving and cutting your nails should be avoided for 4 to 6 hours after the treatment. The anticoagulant which is added to the blood during plasmapheresis slows clotting for up to five hours after plasmapheresis is completed and may cause bleeding if the skin is cut.
10. If undue bruising or swelling at the needle puncture site occurs, notify the apheresis staff.
11. If there are any questions concerning the treatment, symptoms or medications before, during or at any time after the procedure, ask the medical staff.
12. Your frame of mind helps. Approach each treatment with a positive attitude. Be as relaxed as possible.

Remembering these facts will help the patient to better understand plasmapheresis. This form of treatment may help relieve symptoms and allow the patient to lead a fuller and more productive life.

Written and approved by
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