Apheresis in the Office Setting

Therapeutic pheresis is a beneficial treatment for a variety of neoplastic, hematologic, and neurologic disorders. It is a technology that is often prescribed and supervised by hematologists and oncologists, and has applications other than strictly hematologic, according to Roger Lyons, MD, FACP, a hematologist at Cancer Care Centers of South Texas (CCCST) in San Antonio, Texas.

Pheresis is from the Greek and means “to take away” while apheresis means “to separate blood.” The terms often are used interchangeably.¹ Pheresis is any procedure in which blood is withdrawn from a donor and a fluid or solid portion (eg, plasma, leukocytes, platelets, cells) is separated and kept. The remainder is then reinfused into the donor.² When used to treat disease, it is referred to as therapeutic apheresis. There are numerous types, including plasmapheresis, cytappheresis, lipidpheresis, low-density lipoprotein (LDL) apheresis, and photopheresis, each of which is used to treat a specific disease.¹ Plasmapheresis has proven to be an effective adjunctive treatment for many cancers, including some types of leukemia and some blood disorders, such as cryoglobulinemia, thrombotic thrombocytopenic purpura (TTP), and paraneoplastic neurologic syndromes. Plasmapheresis plays a critical role in treating complications of other malignancies, including myeloma and Waldenström’s macroglobulinemia.

While therapeutic apheresis is done both on an in- and outpatient basis, blood banks and hospitals historically have provided these services. John V. Cox, DO, FACP, says that therapeutic apheresis requires expensive equipment and a specialized staff. Blood banks have classically offered these services, as they can use the same equipment for donor apheresis purposes. Additionally, many aspects of cellular apheresis fall under the auspices of blood banks and are regulated by the Food and Drug Administration (FDA). Cellular apheresis donor procedures are performed safely in

blood banks for platelets and WBCs. However, patients undergoing therapeutic apheresis can experience complications. Therefore, the hospital is often the best place to be. Factor in the need to track adverse events, manage quality control, and add staff, and it becomes quite an undertaking for physicians in private practice.

Today, apheresis *is* available to patients in *some* physician practices. With equipment priced at \$50,000 or more per machine, disposables costing between \$1,500 and \$3,000 per patient, plus the cost of adding highly trained professionals to oversee the procedures, apheresis is not something that every office practice can afford to or should offer. However, when office practices find it financially feasible to provide apheresis services and have the required office space and patient volume, it can be a good option for patients and a self-supporting business for the practice.

CCCST, a comprehensive cancer-care practice within the San Antonio area, is one practice that has been successful in providing pheresis in the office setting. The physicians and staff at CCCST provide treatment for cancer and disorders of the blood, as well as conduct clinical trials, and offer plasmapheresis, lipidpheresis, and photopheresis. The practice has 28 board-certified physicians on staff, specializing in medical oncology, hematology, radiation oncology, and gynecologic oncology, and a skilled team of providers comprising registered nurses, nurse practitioners, and physician assistants specializing in the care of patients with cancer and blood disorders.

Dr Lyons, a member of the practice who specializes in hematology and hematologic malignancies, gained experience in pheresis when he set up the pheresis clinic at Southwest Methodist Hospital in San Antonio in 1980 to help in obtaining platelets for patients with acute leukemia. That experience prepared him to establish the pheresis clinic at the CCCST practice in 1999. When he first established the pheresis service for the practice, it provided a mobile service, which also served hospitals. It discontinued the mobile service just 6 months ago because the hospitals it served set up their own service.

CCCST now has four apheresis machines—two standard machines, one specialized machine for removal of LDL, and one photopheresis machine. The practice currently does 250 to 300 apheresis procedures each year. Two CCCST staff nurses administer the pheresis treatments. In addition, the nurses are cross-trained in chemotherapy preparation and administration. A physician is immediately available at all times.

Currently CCCST offers the following:

- *Plasmapheresis*. Used primarily for neurologic conditions, including Guillane Barre Syndrome, chronic

Roger Lyons, MD, with a patient receiving in-office apheresis.

inflammatory demyelinating polyneuropathy, and TTP. Plasmapheresis to replace plasma in TTP has decreased the mortality rate for that disease from 80% to 20%. It also is used to treat immune complex disorders, like lupus vasculitis, and to remove harmful antibodies.

- *Lipidpheresis*. Used to remove LDL cholesterol in patients whose LDL-C is at dangerous levels. One treatment can lower the LDL-C level by 73% to 83%.
- *Photopheresis*. Used to harvest lymphocytes, which are then treated with psoralen and UV light and returned to the patient's blood stream. Dr Lyons said he uses it for cutaneous T-cell lymphomas and to reduce transplant rejection.

The practice does not harvest platelets, stem cells, WBCs, or do RBC exchanges. "Those procedures need to be done in the hospital because they require blood bank certification," Dr Lyons says.

Reimbursement is negotiated individually, and denials are common, according to Dr Lyons, who says that payers do not understand that it can cost them less to pay for apheresis done in the office setting than in the hospital.

Apheresis is not a large piece of CCCST's business, but it is one that shows an acceptable margin and return on investment, as well as allowing patients to undergo the treatment in a familiar and easily accessible setting. "Our patients are very happy to be able to have the procedures in a setting where they feel comfortable."

Dr Lyons was willing to share some words of wisdom for those considering adding pheresis services to their practices

- The practice must have the space to house the machines and the staff and patients using them. He advises starting small with one machine, assessing your success before expanding.

References

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2. NCI Dictionary of Cancer Terms: Definition of pheresis. Available at: <http://www.cancer.gov/dictionary>

- Specially trained staff who can use the machines is a must. CCCST cross-trained the two nurses already working in the practice. The nurses also handle many other responsibilities, including chemotherapy administration and symptom management. "They do a great job," says Dr Lyons, who provides the direction and oversight.
- As with any program or treatment, it is important to create internal training procedures, quality assurance practices, track adverse events, and monitor the program closely to ensure that all is going well and correct what is not."
- Remember that despite the savings that in-office apheresis can represent, many payers will not reimburse or want to reimburse at lower rates for these procedures than they would if done in hospitals. Dr Lyons' staff has to negotiate individually for each patient.
- Consider the return on investment. Dr Lyons cautions that you cannot do this strictly for financial reasons. "This is not easy money," he says. "While you need to make a reasonable margin," says Dr Lyons, "we provide this primarily as a service to our patients, and they appreciate it. If you do it right, you can make an acceptable margin while making life better for patients."³

As for future uses of apheresis, Dr Lyons sees the greatest potential for expansion in the area of lipids. "There is a lot of interest in the care of patients with hyperlipidemia. It is vastly underused," he says. "There are people dying who could have prolonged survival with regular reduction of plasma lipids."

And while practices must always have an eye to the bottom line, improving patients' lives is the overarching goal. Apheresis in the right office setting seems to be meeting that goal.

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