Rapid Ambulation Post-Thoracotomy with the Atrium Express Mini-500 System


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Objectives
The need for cost-effective medical treatment has prompted physicians to search for ways to decrease morbidity and expedite appropriate discharge from the hospital. Ambulation as well as the ability to treat patients on an outpatient basis can facilitate these goals. As early as 1970, Mercier and his colleagues demonstrated that outpatient management of pneumothorax with a sub-clavicular vein, a more cost-effective technique that is becoming more popular, has been shown to be effective and safe in several studies. However, the use of a Heimlich valve after lung resection surgery for emphysema was shown to improve hospital stay (2). Fornin than took this one step further and demonstrated that the presence of a chest tube does not necessarily warrant an admission, whether there is a leak or not (2). Other groups have investigated the use of other ambulatory chest drainage systems such as the Portex system and the Thoracotube Vent as well as the Mitridor system for pneumothorax on an outpatient basis (4).}

Methods
A small prospective randomized clinical trial in the inpatient setting was performed for patients who had thoracotomy tubes after undergoing thoracotomy with pulmonary wedge resection. The Atrium Express Mini-500 system was compared to the standard water-seal collection system.

Ten patients were followed based on the number of days the thoracotomy tube remained on suction, the number of days post-operatively until ambulation, and the total number of days in the hospital. Five patients were randomized to the control group and connected to the standard collection system. There were four men and one woman who ranged in age from 49 to 71 with a mean age of 58. Five more patients were randomized to the experimental group who used the Atrium Express Mini-500 system. There were four men and one woman in this group with ages ranging from 46 to 78 with a mean age of 64.

Standard mean was calculated for each set of data points in a category. Statistical analysis was done using the Chi square method. Statistical significance was based on p < 0.05.

Results
The mean number of days for patients remaining on suction was 3.4 for the standard system versus 1.2 for the Mini-500 (p < 0.05) (Table 1). The mean post-operative day until ambulation was 4.4 for the standard system and 1.2 for the Mini-500 (p < 0.01) (Table 2). The mean time to discharge was 5.6 days for those attached to the standard system and 3.2 days for those using the Mini-500 (p < 0.001) (Table 3).

Conclusion
The ability of a patient to ambulate after surgery can be hindered by the attachment of various tubes, catheters, and drains. The bulk of these devices can also be cumbersome and interfere with ambulation. The design of the Atrium Express Mini-500 is that of a compact, lightweight system with its own internal seal that is easy to carry. Because of its design, the Mini-500 allows for earlier ambulation and facilitates earlier discharge from the hospital. This in turn decreases the risk of morbidity and the concomitant cost of a prolonged hospital stay.

References