ABSTRACT

Lymph accumulation due to disruption of lymph flow is one of the causes of lymphedema. The aim of this research is to design a lymphedema pump therapy device that has good work characteristics. The contribution of this research is that the system can produce maximum pressure in each chamber. In order for the lymphedema pump to have good working characteristics, it is necessary to install sensors in each chamber, give a timer system to the device, and install indicators on the device. The design of this tool uses the MPX5050GP sensor as an air pressure reader in the chamber and the Arduino Nano as a data processing system. Modules that have been made have a pressure range of 20 mmHg - 60 mmHg divided into 5 variations of pressure selection, namely 20 mmHg, 30 mmHg, 40 mmHg, 50 mmHg, and 60 mmHg. The research and manufacture of this module uses a pre-experimental method and type of one group post test design research. Data retrieval is done by comparing the settings in the module with the measurement results that have been converted. The results showed that the cause of error was influenced by leakage factors and patients who moved during the therapy process. Obtained results with a minimum error value of ± 1.6% and a maximum error value of ± 4.3 %. The results of this study can be implemented as a therapeutic tool in patients with lymphedema.