

Data Logger in Blood Bank

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A case report from Blood Bank, Coimbatore Medical College Hospital

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Abstract: Blood is a precious resource which cannot be replaced by any artificial preparation. Storage of blood and blood products and maintenance of cold chain is mandatory in order to issue a safe blood. Modern blood transfusion deals with optimal use of blood with optimal quality of blood. Blood is collected in a pyrogen free sterile blood bags and stored at 2^o to 6^o C or -20^o to -80^o C depends on the component, after screening for transfusion transmitted infections. One unit of blood is separated into packed cells, fresh frozen plasma, platelet concentrate and cryo precipitate. Blood bank equipments like BBR, platelet agitator, plasma freezer, and refrigerated centrifuge can be connected with the data logger. Data logger is a specialized instrument that is extremely accurate in recording and monitoring of equipments in the blood bank. The information from data logger can be monitored by staff at a centralized location. To overcome the disadvantages of thermal charts which were used in the past, data logger is an innovative instrument used to identify the temperature variation, power failures in the blood storage room. The purpose of data logger in a blood bank is to improve the efficiency and accuracy of blood storage process.

Key words: Blood safety, Data logger, Quality regulation

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I. Introduction

A great challenge on blood bank is maintain the adequate blood and blood products with proper cold chain maintenance in order to provide safety blood for the tertiary care centre where the usage of blood is more. Poor performance, less accuracy and unreliability of thermal paper in measuring the temperature of blood bank in nowadays overcome by data logger. Data logger is an electrical instrument that records environmental parameters such as temperatures and relative humidity of an area over time. It overcomes the disadvantages of temporary thermal charts and manpower to record the temperature. Data loggers utilize software on a computer with microprocessor input channels for data storage to collect the data (1)

In our blood bank we use data logger since three years and we are the first blood bank to equip with data logger. The previously used thermal papers are hard to use, time consuming, labour intensive and preservation of thermal papers are difficult. In order to overcome these difficulties we installed data logger hence the identification of temperature variation in the storage room is easily identified at the earliest and the correction is done at an appropriate time. The data logger has an input channel, digital converter, microprocessor, memory data, power supply and data output (2). It is a self contained unit that records the temperature of the individual equipment for every 15 minutes and does not require any person to operate. Also provides a hard copy printout of the data recorded which can be immediately analyzed and stored for a long time. A data logger can record at very long intervals and can note when an alarm condition is occurring (2).

Nowadays it is generally accepted that there are few clinical conditions the transfusion of whole blood is indicated (3). Whole blood should be processed on the day of blood collection and stored at 2^o to 6^o C. Red cell component must not exceed 30 minutes at room temperature and stored at 2^o to 6^o C (3). Platelets are stored at room temperature (22^o C) only for 5 days due to its shelf life (4). Fresh frozen plasma and cryo precipitates are stored at -40^o C for one year (3). Therefore maintenance of components in controlled temperature environment is mandatory until administered. Alarm set points of components within 0.5^o C of the storage temperature range.

II. Conclusion

All the blood banks should be installed with data logger to detect the trouble shooting of blood storage equipments and also to maintain the quality of blood and blood products. The benefits of data logger and the disadvantages of thermal paper use should be considered. Assurance of safe blood issue from blood bank is promised by maintaining the cold chain.

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