

Restricted Albumin Utilization Is Safe and Cost-effective in Pediatric Cardiac Surgery Intensive Care Unit

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Background:

Volume expansion is often necessary after cardiac surgery, and albumin is often administered.

Albumin has been used for fluid resuscitation in the OR and ICU, since 1940 (Rabin, Joseph2018) Its usage gained prominence based on the classic descriptions of trans vascular exchange by Earnest Starling who purported that colloids such as albumin should be more effective at increasing depleted intravascular volume due to their relative vascular membrane impermeability when compared to crystalloids such as saline.

In the pediatric cardiac intensive care unit (PCICU) at Aswan Heart Centre, there were albumin usage is high without restriction, in addition to financial effect because the price of albumin vials has increased because of global economic changes. so, cost cost-effectiveness quality improvement project was started, and applying restrictive guidelines from the last two weeks of June 2022.

Aim and objectives:

This study analyzes the impact of limiting albumin infusion in a pediatric cardiac surgery intensive care unit.

Result:

In all,594 patients were admitted over 12 months. Albumin use and patient NO were compared for 281 patients before and 313 patients after guidelines were initiated. After using restrictive guidelines, albumin utilization was reduced from a mean of 200 vials monthly to a mean of 82 monthly vials. Based on an average wholesale price (750 EGP) and an average monthly reduction of 118 albumin vials, the cardiac surgery intensive care unit demonstrated more than 88500 EGP of wholesale savings per month after restrictions were implemented, a total over 6 months of 531000 EGP.

Conclusion:

Albumin restriction in PCICU unit was feasible and safe as there were no risks for patients or complications reported by physicians.

Significant reductions in utilization and cost with no changes in morbidity were demonstrated. These findings may provide a strategy for reducing cost while maintaining quality of care.

Methods:

This study analyzed albumin use between January 2022 and December 2022 in patients admitted to PCICU. During the first 6 months, there were a number of restrictions as albumin was used as fluid replacement for major post-operative patients. By the end of June 2022, institutional guidelines limited albumin use to neonate patients requiring colloid in the early postoperative period, hypoalbuminemia patients, patients who are considered fluid overloaded and patients requiring more than 3-liter crystalloid.

Keywords:

Albumin, Cost-effectiveness, PCICU.