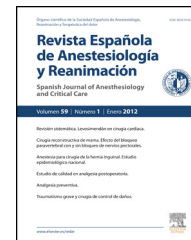




Revista Española de Anestesiología y Reanimación

www.elsevier.es/redar



ORIGINAL ARTICLE

Implementation of a patient blood management programme in pediatric scoliosis surgery[☆]



A. Pérez-Ferrer^{a,*}, E. Gredilla-Díaz^a, J. de Vicente-Sánchez^a,
F. Sánchez Pérez-Gruoso^b, F. Gilsanz-Rodríguez^a

^a Servicio de Anestesiología y Reanimación, Hospital Universitario La Paz, Madrid, Spain

^b Servicio de Traumatología y Cirugía Ortopédica, Hospital Universitario La Paz, Madrid, Spain

Received 11 January 2015; accepted 19 April 2015

Available online 9 September 2015

KEYWORDS

Bloodless medical and surgical procedures;
Autologous blood transfusion;
Intraoperative blood salvage;
Erythropoietin;
Scoliosis;
Orthopaedic surgery

Abstract

Objectives: To determine whether the implementation of a blood conservation programme, and the adoption and progressive association of different methods, reduces transfusion requirements in paediatric patients undergoing scoliosis surgery of different origins.

Material and method: Quasi-experimental, nonrandomized, descriptive study, approved by the Ethics Committee for Research of our institution. 50 paediatric patients (ASA I-III) aged 5–18 years, undergoing scoliosis surgery of any aetiology by a single posterior or double approach (anterior and posterior) were included. A historical group with no alternatives to transfusion: Group No ahorro=15 patients (retrospective data collection) was compared with another 3 prospective study groups: Group HNA (acute normovolemic hemodilution)=9 patients; Group HNA+Rec (intraoperative blood salvage)=14 patients, and Group EPO (HNA+Rec+erythropoietin±preoperative donation)=12 patients; according with the implementation schedule of the transfusion alternatives in our institution.

Results: The rate of transfusion in different groups (No ahorro, HNA, HNA+Rec, EPO) was 100, 66, 57, and 0% of the patients, respectively, with a mean±SD of 3.40±1.59; 1.33±1.41; 1.43±1.50; 0±0 RBC units transfused per patient, respectively. Statistically significant differences ($p < .001$) were found in both the transfusion rate and number of RBC units.

Conclusions: The application of a multimodal blood transfusion alternatives programme, individualised for each paediatric patient undergoing scoliosis surgery can avoid transfusion in all cases.

© 2015 Sociedad Española de Anestesiología, Reanimación y Terapéutica del Dolor. Published by Elsevier España, S.L.U. All rights reserved.

[☆] Please cite this article as: Pérez-Ferrer A, Gredilla-Díaz E, de Vicente-Sánchez J, Sánchez Pérez-Gruoso F, Gilsanz-Rodríguez F. Implementación de un programa de alternativas a la transfusión sanguínea en cirugía de escoliosis en pediatría. Rev Esp Anesthesiol Reanim. 2016;63:69–77.

* Corresponding author.

E-mail address: antonioperezferrer@gmail.com (A. Pérez-Ferrer).

PALABRAS CLAVE

Alternativas a la transfusión;
 Transfusión de sangre autógena;
 Recuperación de sangre operatoria;
 Eritropoyetina;
 Escoliosis;
 Cirugía ortopédica

Implementación de un programa de alternativas a la transfusión sanguínea en cirugía de escoliosis en pediatría

Resumen

Objetivos: Determinar si la puesta en marcha de un programa de ahorro de sangre y la adopción y asociación progresiva de diferentes métodos reducen las necesidades transfusionales en pacientes pediátricos intervenidos de escoliosis de múltiples etiologías.

Material y método: Estudio cuasiexperimental, no aleatorizado y descriptivo, aprobado por el Comité de Ética para la Investigación de nuestra institución. Se incluyeron 50 pacientes pediátricos (ASA I-III) de edades comprendidas entre los 5 y los 18 años, intervenidos de cirugía de escoliosis de cualquier etiología mediante un único tiempo posterior o doble abordaje, anterior y posterior. Se compararon un grupo histórico (recogida retrospectiva de datos), sin alternativas a la transfusión (Grupo No ahorro = 15 pacientes), y otros 3 grupos prospectivamente: Grupo HNA (hemodilución normovolémica aguda) = 9 pacientes, Grupo HNA + Rec (recuperación intraoperatoria) = 14 pacientes, Grupo EPO (HNA + Rec + eritropoyetina ± donación preoperatoria) = 12 pacientes, conforme se implementaron las diferentes alternativas a la transfusión en nuestra institución.

Resultados: La tasa de transfusión en los diferentes grupos (No ahorro, HNA, HNA + Rec, EPO) fue del 100, 66, 57 y 0% de los pacientes, con una media ± DE de $3,40 \pm 1,59$; $1,33 \pm 1,41$; $1,43 \pm 1,50$; 0 ± 0 unidades de CH transfundidas por paciente, respectivamente, con diferencias estadísticamente significativas ($p < 0,001$) tanto en la tasa de transfusión como en el número de unidades.

Conclusiones: La aplicación de un programa multimodal de alternativas a la transfusión sanguínea en cirugía de escoliosis pediátrica, individualizado para cada paciente, puede evitar la transfusión en la práctica totalidad de los casos.

© 2015 Sociedad Española de Anestesiología, Reanimación y Terapéutica del Dolor. Publicado por Elsevier España, S.L.U. Todos los derechos reservados.

Introduction

A growing body of evidence in recent years has shown that blood transfusion leads to poor clinical outcomes, including high rates of infection,¹ morbidity and mortality, and significantly increases healthcare costs. Despite this, transfusion is common practice in some types of surgery, particularly obstetric, cardiac, and trauma and orthopaedic interventions.

Scoliosis surgery is associated with blood loss that at times exceeds even the patient's blood volume.² Bleeding is greater in patients with concomitant disease, such as cerebral palsy, myelomeningocele and neuromuscular scoliosis. Other key factors are the number of fused vertebrae, duration of surgery,^{3,4} and two-stage posterior and anterior approach.⁵

Many different blood management programmes have been developed for scoliosis surgery. Although they were first welcomed with great expectations, only a few have stood the test of time due to their cost-effectiveness ratio and safety profile.

There is scant reference in the literature to studies on blood management in paediatric scoliosis surgery, and the clinical use of these techniques varies greatly.⁶

In this study, we show the evolution of allogeneic blood requirement in paediatric scoliosis surgery in our hospital, following the gradual introduction of a bloodless surgery programme, and the progressive implementation of different blood conservation techniques.

Material and methods**Design**

This is a quasi-experimental, non-randomised, descriptive study approved by the Clinical Research Ethics Committee of our hospital in 2004. A total of 50 paediatric patients were included (ASA I-III) aged between 5 and 18 years, undergoing any type of scoliosis surgery using a single-stage posterior approach or a posterior-anterior in two stages separated by one week. Patients with sensitivity to any of the study drugs (heparin, erythropoietin [EPO]), patients scheduled for surgery with insufficient time to implement the blood conservation techniques, and patients with known blood or haemostasis disorders were excluded.

Four groups were compared: the No management (*No ahorro*) group = 15 patients; the ANH (acute normovolaemic haemodilution) group = 9 patients, the ANH + Sal (blood salvage) group = 14 patients; and the EPO group = 12 patients.

Patients were assigned to 3 different blood conservation groups according to the system available at any given time, and were compared with the historic group (1997 and 1998) of 15 patients undergoing surgery prior to the introduction of acute normovolaemic haemodilution (ANH). These patients had only received allogeneic transfusion, and their data were sourced retrospectively from clinical records (No management group). The data from the 35 patients in whom blood conservation strategies were used (groups ANH, ANH + Sal and EPO) were collected prospectively.

Download English Version:

<https://daneshyari.com/en/article/2769830>

Download Persian Version:

<https://daneshyari.com/article/2769830>

[Daneshyari.com](https://daneshyari.com)