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It is generally recommended that patients with sickle cell disease receive red blood cell (RBC) transfusions before undergoing general anesthesia and surgery. Since RBC transfusions are costly, inconvenient, and may cause serious complications, it might be useful to identify groups of patients for whom they are not absolutely necessary. We report our experience with 54 pediatric patients undergoing 66 elective surgical procedures without preoperative transfusion preparation. All patients were felt to be clinically and hematologically stable in the immediate preoperative period. For the majority of procedures (57/66, 86%) no transfusions were administered at any time during the perioperative course. There were no intraoperative complications or postoperative deaths. Overall, some type of postoperative complication was encountered after 17 procedures (26%). Complications were usually minor and were more likely to occur after procedures involving thoracotomy or laparotomy (10/20, 50%) and tonsillectomy/adenoidectomy (T&A) (5/9, 56%) than other procedures (2/37, 5%; $P < .001$). Pulmonary complications were especially more prevalent in the group undergoing thoracotomy, laparotomy, or T&A (9/29 v 0/37 for all other procedures, $P < .001$). We conclude that preoperative transfusions might be avoided in children with sickle cell disease who undergo most minor surgical procedures on an elective basis. Patients undergoing thoracotomy, laparotomy, or T&A are at a relatively higher risk of developing postoperative complications and would comprise ideal groups for evaluation of preoperative transfusion regimens in prospective carefully controlled, randomized studies.