Pediatric spine surgery infection

Quality improvement methods are being implemented in various areas of medicine. In an effort to reduce the complex (instrumented) spine infection rate in pediatric patients, a standardized protocol was developed and implemented at an institution with a high case volume of instrumented spine fusion procedures in the pediatric age group. METHODS:

Members of the Texas Children's Hospital Spine Study Group developed the protocol incrementally by using the current literature and prior institutional experience until consensus was obtained. The protocol was prospectively applied to all children undergoing complex spine surgery starting August 21, 2012. Acute infections were defined as positive wound cultures within 12 weeks of surgery, defined in alignment with current hospital infection control criteria. Procedures and infections were measured before and after protocol implementation. This protocol received full review and approval of the Baylor College of Medicine institutional review board. RESULTS:

Nine spine surgeons performed 267 procedures between August 21, 2012, and September 30, 2013. The minimum follow-up was 12 weeks. The annual institutional infection rate prior to the protocol (2007-2011) ranged from 3.4% to 8.9%, with an average of 5.8%. After introducing the protocol, the infection rate decreased to 2.2% (6 infections of 267 cases) ($p = 0.0362$; absolute risk reduction 3.6%; relative risk 0.41 [95% CI 0.18-0.94]). Overall compliance with data form completion was 63.7%. In 4 of the 6 cases of infection, noncompliance with completion of the data collection form was documented; moreover, 2 of the 4 spine surgeons whose patients experienced infections had the lowest compliance rates in the study group. CONCLUSIONS:

The standardized protocol for complex spine surgery significantly reduced surgical site infection at the authors' institution. The overall compliance with entry into the protocol was good. Identification of factors associated with post-spine surgery wound infection will allow further protocol refinement in the future [1)].

1)
Ryan SL, Sen A, Staggers K, Luerssen TG, Jea A; Texas Children's Hospital Spine Study Group. A standardized protocol to reduce pediatric spine surgery infection: a quality improvement initiative. J Neurosurg Pediatr. 2014 Sep;14(3):259-65. doi: 10.3171/2014.5.PEDS1448. Epub 2014 Jun 27. PubMed PMID: 24971606.