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Research and evidence about blood sparing in spine surgery

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Blood loss in spine surgery seems to be significant, not only for major surgery for deformity and tumors but also in more frequent and near-routine fusion procedures. In some deformity surgery, such as that for neuromuscular scoliosis, the problem is worsened by the probable coagulation troubles present in those patients.

However, while almost every hip- or knee-arthroplasty database contains information about blood loss and/or transfusion performed, this does not appear to be the case for spine surgery. The number of publications treating that subject is also much smaller in the case of spine surgery. Is the problem underestimated or understudied?

With a few exceptions (vasoconstrictor infiltration, epidural blockage) the techniques used for hemostasis and blood sparing in spine surgery are very similar to those widely used in other fields of surgery. Given the wide use of those methods and the large number of publications in multiple surgical fields, it is surprising to discover the lack of evidence regarding the efficacy of most of them. Most of the available evidence is for the field of cardiac surgery. Less is available for most other types of surgery, and very little is based on true evidence when it comes to spinal procedures. The widely varying methods for preventing excessive blood loss or transfusion requirements concern both the surgeon and

the anesthetist, and the results demand a close and efficient collaboration.

Classical hemodynamic methods show the highest levels of evidence, although conflicting reports are common. Planned autologous donation is also efficient for reducing the need for homologous transfusions. However, there are some reports of overcollection and under-use as frequent and important waste factors contributing to high price [4], which may lead to declining use [1]. Likewise, while usually considered efficacious, hypotensive anesthesia and acute normovolemic dilution are also the subject of inconclusive reports in spine surgery.

It is also surprising to see that some very widely used techniques are based solely on some common knowledge and feeling, but no evidence. A good example is the infiltration with vasoconstrictor agents of the paraspinal muscles. The use of antifibrinolytic drugs, some of them quite expensive, only showed evidence in cardiac surgery and in patients with bleeding disorders and for a limited number of those agents [2]. In other fields, including spine, the reported studies show conflicting results. It appears that the efficacy of these agents is procedure-specific, and evidence should be demonstrated in each case. RCT trials should be conducted in spine surgery to demonstrate unequivocal evidence.

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The routine, daily use of all those techniques is also quite limited at the present time. Several surveys have shown that, outside of cardiac surgery, the regular use of any blood-sparing method is infrequent [3]. Lack of familiarity is the first reason given for their infrequent use.

True evidence must be gathered for blood-sparing strategies in the field of spinal procedures, and popularization with those techniques that

show efficacy should be promoted. In this way, blood sparing will have the same place and importance in the armamentarium of spine surgeons and anesthesiologists that it has in that of other surgical specialties.

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