



Blood loss in computer-assisted mobile bearing total knee arthroplasty. A comparison of computer-assisted surgery with a conventional technique.

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ABSTRACT

Computer-assisted surgery (CAS) in total knee arthroplasty (TKA) could be useful in reducing the overall blood loss. A prospective randomised study was performed with two groups of 50 patients each of whom were treated for knee arthritis. Patients of group A were treated by a conventional standard procedure, while for patients of group B a specific CAS procedure was used. We determined the intraoperative blood loss according to the Orthopaedic Surgery Transfusion Haemoglobin European Overview (OSTHEO) study. The average blood loss in patients of group A was 1,974 ml (range: 450–3,930 ml) compared to 1,677 ml of patients of group B (range: 500–2,634 ml).

A statistically significant difference was found between the two groups ($p=0.0283$). Computer-assisted surgery is highly recommended in TKR to save blood. It creates more possibilities to operate on anaemic patients and subjects who cannot accept blood products by reducing blood loss risk.

SUMMARY

In a randomized controlled trial including 100 patients the blood loss was determined for both the conventional group A and the navigated group B (Brainlab system used). A statistically significant difference in the mean total blood loss was detected comparing the two groups.

CONCLUSION

Blood loss reduction by 15% when using navigation.

“The mean total blood loss was 1,974 ml [...] in [the conventional] group A and 1,677 ml [...] in [the navigated] group B”

“We believe that CAS with a minimally invasive approach can reduce blood loss in total knee replacement especially since the intramedullary femoral hole is avoided.”

“Computer-assisted surgery is highly recommended in TKR to save blood”

Benefits of CAS are decrease of blood loss, better alignment and potentially better long-term outcome.

“We believe that the observed decrease of blood loss is one of the benefits of CAS. Better alignment of the limb and, maybe, a better long-term outcome can also be expected with this innovative procedure.”