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Reducing the failure rate of hip resurfacing in dysplasia patients

Arthritis secondary to developmental hip dysplasia often mandates implant surgery at a relatively young age. Hip resurfacing arthroplasty (HRA), compared with standard stemmed total hip arthroplasty (THA), affords a more active lifestyle including extreme-motion activities but stimulates concerns pertaining to implant failure.

We addressed the primary modes of failure through a series of interventions, including a new guideline for achieving proper implant alignment through intraoperative x-rays. We then compared two sequential cohorts in a single-surgeon practice: patients with developmental dysplasia who underwent HRA before (Group 1; 121 hips in 105 patients) and after (Group 2; 242 hips in 210 patients) June 2008, at which time the four interventions were all in place.

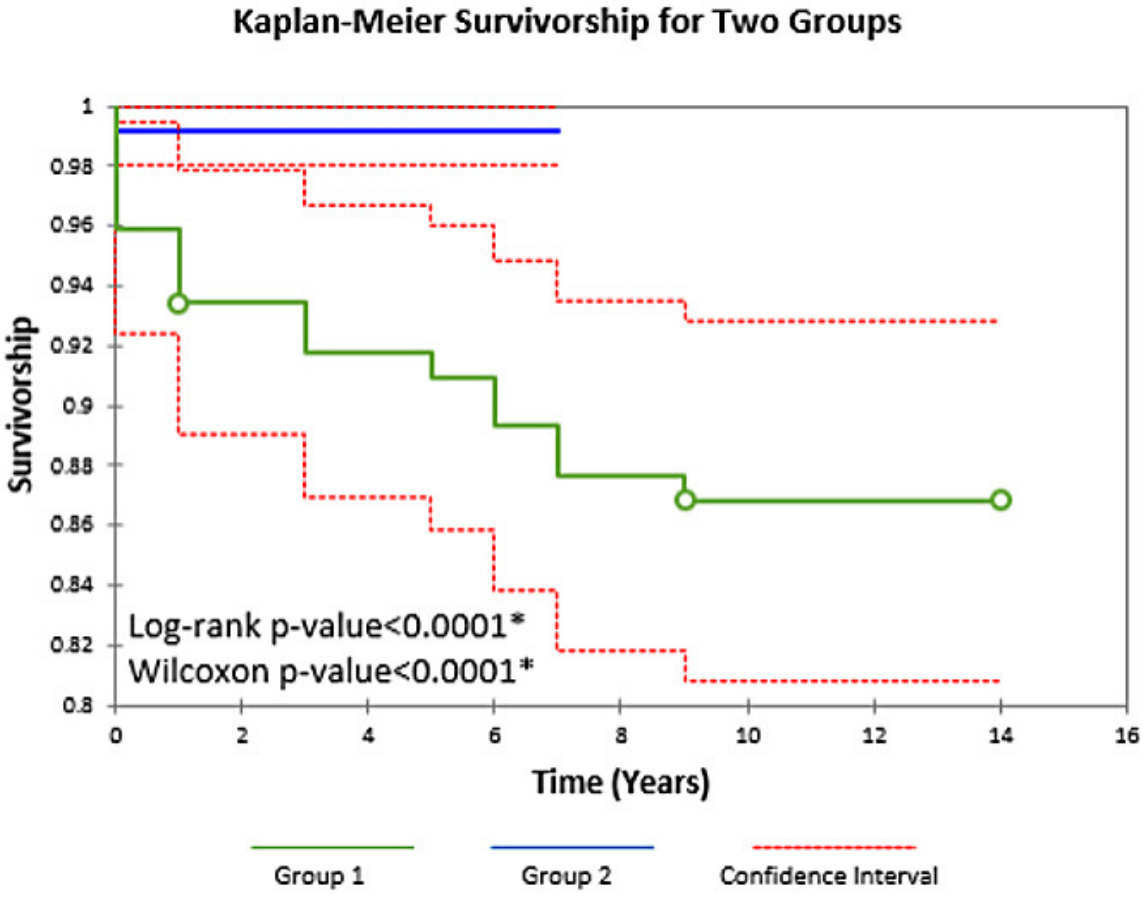

Fig. 1. Kaplan-Meier survivorship curves for pre-2008 (Group 1) and post-2008 (Group 2) resurfacing procedures on dysplasia patients. Revision of any component was used as endpoint. Plus signs represent censored deaths unrelated to the patient's hip surgery. (*statistically significant)

Implants in Group 2 failed less frequently within two years (0.8% vs. 6.6%, $p = 0.002$) and were more likely to have projected seven-year Kaplan-Meier survivorship (99% vs. 89%, $p < 0.0001$ by log-rank test). Patients in Group 2 were more likely to have normal metal ion levels (77% vs. 56%, $p = 0.0008$) and optimum metal ion levels (99% vs. 86%, $p = 0.0008$). Patients in Group 2 also benefited from a 19-minute decrease in mean operation time, a 45% decrease in mean estimated blood loss, and a 0.9-day decrease in mean hospital stay ($p < 0.0001$ in each instance).

We believe the interventions reported here, combined with sufficient surgeon experience and properly designed implants, afford patients with mild developmental dysplasia a more active lifestyle with favorable implant survival.

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Publication

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