Symposium: 2013 Limb Lengthening and Reconstruction Society

Editorial Comment: 2013 Limb Lengthening and Reconstruction Society

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The Limb Lengthening and Reconstruction Society (LLRS), a member of the American Academy of Orthopaedic Surgeons Board of Specialties, was founded in 1989 as the Association for Study and Application of the Methods of Ilizarov-North America. During the 25 years that followed, this eclectic society grew in membership and broadened its scope. Each year, US and international clinicians and scientists from various orthopaedic

subspecialties attend the LLRS scientific meeting and present their work. These presentations cover a broad range of topics including conventional and innovative techniques for managing patients with congenital, developmental, and acquired limb deformities and shortening, extremity trauma (including sequelae), and methods of enhancing bone formation. In this issue, we present the latest research on these topics, papers that first were shared at the 2013 annual LLRS meeting.

Despite the emergence of innovative internal fixation implants and techniques, external fixation remains in the toolbox of most orthopaedic surgeons, and since these were important topics covered at the meeting, they feature prominently here. Researchers continue to investigate innovative means of enhancing new bone formation during distraction osteogenesis such as local injection of bone marrow aspirate concentrate plus platelet-rich plasma and the use of uncultured autogenous adipose-derived regenerative cells. While these techniques appear promising, further investigation will be needed to define their role, if any, in patients undergoing gradual correction through an osteotomy.

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The use of intramedullary nails for limb lengthening is gaining popularity since these devices avoid some of the problems and annoyance associated with an overlying external fixator. As with previous advances in medical technology, these internal fixation devices demand cautious reflection since these devices, despite their initial appeal, may be associated with important shortcomings and troublesome modes of failure. Examples of such problems include a propensity for mechanical failure of the intramedullary implant, a tendency for creating

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iatrogenic deformities with substantial lengthening, the limited ability to perform “residual” corrections and challenges with stabilizing adjacent joints with ligamentous laxity, as in patients undergoing limb reconstruction for congenital limb deficiency. These intramedullary nails are not simply addressing a fracture. Instead, they are being used to gradually distract through the osteotomy site, the learning curve including preoperative planning is much longer and steeper than for acute-traumatic indications. Furthermore, given the relative ease of implant insertion, experienced (and not so experienced) surgeons may be tempted to expand the indications and offer procedures such as “cosmetic” limb lengthening to individuals who are otherwise healthy and do not have a

limb deformity or leg length inequality. As one browses the Internet, it is obvious that there is an interest among some patients and surgeons in this indication. Surgeons who are willing to perform limb lengthening for aesthetic indications alone liken it to the cosmetic procedures offered by our plastic surgery colleagues, while other providers with a “don’t fix what isn’t broke” mindset question the merit of such elective procedures.

In order to improve patient safety, structured training in the basic principles of distraction osteogenesis, including the pitfalls of lengthening nails, should be strongly encouraged for surgeons planning to use these implants. Although a challenging task, perhaps societies such as the LLRS can delve deeper into these issues and help

establish “Appropriate Use Criteria” pertaining to various techniques in limb lengthening and deformity correction. Additionally, in order to define the indications for and value of using conventional and recently-introduced lengthening techniques and devices, we need more robust multicenter studies with patient-centered outcomes and long-term followup. I am hopeful that clinicians and researchers will continue to develop such outcome tools and expand our knowledge in the field of limb lengthening and deformity correction for children and adults worldwide.

I would like to thank members of the LLRS board and the reviewers who participated in this symposium for their support and candid feedback. We hope you enjoy reading these papers.