CLINICAL OVERVIEW

Clinical Outcomes of a Pneumatic Unloader Brace for Kellgren–Lawrence Grades III to IV Osteoarthritis: A Minimum 1-Year Follow-Up Study

Full Study appeared in The Journal of Knee Surgery. 2016: Vol 29(8), pp 634 – 638. *Morad Chughati, MD, Anil Bhave, PT, Sabahat Z. Khan, MD, Anton Khopas, MD, Osman Ali, MD, Steven F. Harwin, MD, Michael A. Mont, MD.*

The use of a pneumatic unloader brace has been shown to decrease pain and increase muscle strength in patients with knee osteoarthritis (OA). We analyzed patients who either received a pneumatic unloader brace and conventional treatment or conventional treatment alone.

Specifically, we assessed: (1) use of pain relieving injections; (2) opioid consumption; and (3) the eventual need for total knee arthroplasty (TKA) in the above-mentioned cohort. We performed an analysis of a longitudinally maintained database of patients from a prospective, randomized, single center study. The brace cohort comprised 11 patients with a mean age of 55 years (range, 37–70 years). The final matched cohort comprised 25 patients with a mean age of 63 years (range, 41–86 years). The minimum follow-up was 1 year.

There was a lower proportion of patients who underwent an eventual TKA in the braced cohort as compared with the non-braced cohort (18 vs. 36%). The mean time to TKA was longer in the bracing cohort as compared with the non-braced cohort (482 vs. 389 days). There was a significantly lower number of patients who received injections in the braced cohort as compared with the non-braced cohort (46 vs. 83%, p 1⁄4 0.026). The braced cohort had received a significantly lower number of injections and a lower rate of subsequent TKA as compared with the non-braced cohort. The mean time to TKA was also longer among the braced cohort. These results may demonstrate the potential of this brace to reduce the need for and prolonging the time to TKA. Performing larger prospective randomized studies, with built-in compliance monitors is warranted. This brace may be a valuable adjunct to the current knee OA treatment armamentarium pending further investigation.

Subjects

- **36 patients who had Kellgren-Lawrence grades 3-4 knee osteoarthritis were prospectively and randomly enrolled.**
- **The final brace cohort comprised 11 patients with a mean age of 55 years.**
- **Minimum follow-up of one year; mean 27 months, range 12 – 41 months.**
- **Matched cohort comprised 25 patients with a mean age of 63 years.**

	Brace N (%)	No brace N (%)	P-Value
Total	11	25	
Follow-up in mo (mean) (range)	27 (12–41)	27 (12–36)	0.832
Eventual TKA	2 (18)	9 (36)	0.285
Time to TKA in days (mean) (range)	482 (374–589)	389 (186–906)	0.610
Opioid use	3 (27)	5 (22)	0.722
Injections (steroid/anesthetic combination)	5 (46)	19 (83)	0.026

Material and Methods

- **Braced patients were instructed to wear an OA Rehabilitator™ brace (Guardian Brace) for a minimum of three hours a day when ambulating, and were allowed to use while performing activity such as stairs, elliptical training, or riding a bike.**
- **Both the braced group and non-braced group were provided prescriptions for self-guided home exercise programs.**
- **Both groups use of pain relieving injections was measured over the study period.**
- **Opioid consumption was evaluated for both groups.**
- **Eventual need for total knee arthroplasty (TKA) in both groups was compared.**

Results

- **Eventual TKA in the braced cohort was half that of the non-braced cohort**
- **The mean time to TKA was longer in the braced cohort compared to the non-braced cohort (482 vs. 389 days)**
- **The percentage of patients who used opioids was similar.**
- **The braced cohort received significantly less injections as compared to the non-braced cohort (46% vs 83%)**

Discussion

- **A significant reduction in the need for injections may be indicative of the therapeutic potential of this brace.**
- **A lower proportion of patients who had an eventual TKA point to the potential of reducing the need for and prolonging the time to TKA.**

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