TRANSFORAMINAL INTERSOMATIC LUMBAR ARTHRODESIS: COMPARISON BETWEEN AUTOGRRAFT AND CAGE IN PEEK

ARTRODESE LOMBAR INTERSOMÁTICA TRANSFORAMINAL: COMPARADO AUTOENXERTO E CAGE-PEEK

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ABSTRACT

Objective: To compare the postoperative outcomes of transformaminal intersomatic lumbar arthrodesis with structured iliac bone autograft and PEEK device. Methods: The total of 93 medical records of patients undergoing transformaminal intersomatic fusion between January 2012 and July 2017 with at least 1 year of postoperative follow-up, with complete medical record, containing clinical file and radiological exams, were reviewed. Results: From the medical records evaluated, 48 patients underwent the procedure with structured iliac autograft (group 1) and 45 with PEEK device (group 2). There was an improvement in functional capacity in both groups (p < 0.001), however there was no difference when comparing them (p = 0.591). Conclusion: The postoperative clinical and radiological results of lumbar arthrodesis with TLIF technique, using a structured iliac bone autograft compared to a PEEK device, were similar. Level of Evidence II, Retrospective study.

Keywords: Spinal Fusion. Laminectomy. Intervertebral Disc Degeneration.

INTRODUCTION

Spinal disorders are among the most common problems encountered in clinical practice, affecting up to 80% of the population at some point in life. Lumbar arthrodesis is used as a treatment alternative for patients with degenerative discopathies, spondyloolisthesis, segmental instabilities, among others. It may or may not be associated with instrumentation, being subdivided depending on its approach such as: posterior fusion (PF), posterolateral fusion (PLF), anterior lumbar intersomatic fusion (ALIF), posterior lumbar intersomatic fusion (PLIF), transformaminal lumbar intersomatic fusion (TLIF) and lateral lumbar intersomatic fusion (LLIF). The association of PLF with pedicular instrumentation presents consolidation levels of up to 92%. Including the intersomatic technique, it reaches rates of 96% in the case of PLIF associated with transpedicular fixation. PLF requires major retraction of the dural sac and nerve roots, increasing the risk of dural injury and root injury. The transformaminal technique (TLIF) brought less manipulation of neural structures with unilateral access to the disc space, becoming the most used technique for lumbar degenerative disorders. The theoretical advantages of TLIF over PLF include anterior spine support, indirect foraminal decompression, removal of the disc as a pain generator, and restoration of lumbar lordosis.

All authors declare no potential conflict of interest related to this article.

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To perform vertebral fusion, bone graft sums traditionally obtained from the patient’s iliac crest,\textsuperscript{10,11} considered the gold standard, which provides mineral architecture for the orientation of bone growth and osteogenic factors.\textsuperscript{12} In this sense, this study aims to analyze clinical and radiographic parameters of patients submitted to lumbar arthrodesis by transfemoral technique using structured iliac autograft, as well as to compare postoperative clinical and radiographic results after lumbar intersomatic arthrodesis using structured iliac autograft and the PEEK device.

**MATERIALS AND METHODS**

The study was approved by the Research Ethics Committee under Protocol No. 1342, in 2017. All participants signed an informed consent form. Data from medical records from 2012 to 2016 from the database of a private hospital were included, where a search was performed for patients submitted to transfemoral intersomatic lumbar arthrodesis, of both genders, over 18 years of age, for the treatment of lumbar degenerative disease, such as spondylolistesis, degenerative disease of the vertebral canal and spinal canal stenosis. As inclusion criteria, patients should have all been operated by the same surgical team, have intersomatic arthrodesis by transfemoral access of one or two vertebral levels, complete follow-up with medical records, imaging exams and questionnaires routinely applied by the group before and after the surgical procedure. Lumbar arthrodesis is indicated by the group in the presence of degenerative disease of the lumbar spine with segmental instability, previously submitted to clinical treatment for at least six months in the absence of neurological urgency. The medical records of individuals with active neoplastic or infectious disease, scoliosis with angulation greater than 15° and surgeries of three or more lumbar levels were excluded.

The patients were grouped as follows: Group 1 (structured iliac bone autograft, Figure 1) and Group 2 (PEEK device, Figure 2) according to the description of the surgical technique.

Before surgery, patients underwent simple radiographs and MRI scans in the anteroposterior and lateral positions, as well as the lateral position with maximum flexion and extension. The scale of Pfirrmann et al.\textsuperscript{14} was used for classification of disc degeneration. The determination of muscle strength was according to the Medical Research Council scale for manual motor tests.\textsuperscript{15} Radiological measurements were carried out before the surgery and one-year after it, through the Software Surgimap\textsuperscript{16} and Easy Pixel Tool\textsuperscript{17} version 1.1 (for OS X 10.8 processor or later 64-bit). For the height of the intervertebral disc, the modified Farfan classification was used.\textsuperscript{18} The angle of the intervertebral disc and lumbar lordosis were measured according to Cobb’s method (1948).\textsuperscript{19} For radiographic evaluation of fusion, criteria of the Food and Drug Administration Center for Devices and Radiological Health (FDA) were used, in which fusion is defined as angular motion smaller than five degrees and sagittal movement on dynamic radiographs less than three millimeters.\textsuperscript{20}

**Surgical technique**

Performed by paramedian surgical access.\textsuperscript{10-21} Single incision in the skin, subcutaneous divulsion, removal of iliac bone graft including the anterior-superior iliac spine (right or left) totaling 2 or 2.5 cm of craniocaudal extension. The latero-medial size was the thickness of the iliac of the patient and a depth of 0.5 cm, so that muscle disinsertion was not performed, and the limits of the sacroiliac joint were respected. Removal of iliac spongy graft. The back-loin fascia was sutured along with the subcutaneous. We carried out the incision of two access routes in the back plate fascia, as well as muscle digitodivulsion, installation of polyaxial pedicular screws in L4 to S1 or L5-S1, hemoilaminectomy(s) of the most symptomatic side and facetectomies, transfemoral access to the disc, preparation of terminal plates and partial filling of the disc space (anterior to the intersomatic device) with iliac spongy bone graft.

Group 1: Manual preparation of the iliac bone autograft structured by additional osteotomies with a gouge, respecting the height of the disc space observed intraoperatively. Introduction by annullotomy by intersomatic positioning in the middle third of the vertebral bodies under traction, without intersomatic compression before torque in the fixation system.

Group 2: Measurement of the height of the intraoperative disc space under traction of the screws to determine the size of the

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**Figure 1.** Photographs of the structured iliac graft and spacer in polyether-ether-ketone polymer, demonstrating measurement of the laterolateral diameter, 2016.

**Figure 2.** Photographs of the structured iliac graft and the spacer in polyether-ether-ketone polymer, demonstrating measurement of the anteroposterior diameter, 2016.
device. Introduction by annullotomy by positioning it intersomatic in the middle third of the vertebral bodies under traction, without intersomatic compression before torque in the fixation system. As shown in Figure 3:

![Figure 3. X-ray images of the lumbosacral spine in orthostatic profile illustrating intersomatic arthrodesis with structured iliac auto graft (A) and intersomatic device in PEEK (B), 2016.]

### Table 1. Characterization of patients treated with lumbar arthrodesis using transforaminal lumbar intersomatic fusion in polyether-ether-ketone polymer and structured iliac bone autograft, São Paulo, Brazil, 2012-2016.

| Variables                  | N  | %  |
|----------------------------|----|----|
| **Gender**                 |    |    |
| Female                     | 40 | 43 |
| Male                       | 53 | 57 |
| **Number of Affected Locations** |    |    |
| 1 location                 | 63 | 67.7 |
| 2 locations                | 30 | 32.3 |
| **Comorbidities**          | 5  | 18.5 |
| **Smoking habit**          | 26 | 28.3 |
| **Physical Activity**      |    |    |
| Preoperative               | 37 | 40.2 |
| Post-operative             | 48 | 52.2 |
| Employment                 | 83 | 90.2 |
| **Pfirrmann**              |    |    |
| III                        | 7  | 5.4 |
| IV                         | 116| 89.9|
| V                          | 6  | 4.7 |
| **Pathologies**            |    |    |
| Degenerative discopathy with compression | 58 | 62.4 |
| Degenerative discopathy without compression | 6  | 6.3 |
| Spondylolisthesis          | 18 | 19.4 |
| Central stenosis           | 1  | 1.1 |
| Pseudoarthrosis            | 9  | 9.7 |
| Synovial cyst              | 1  | 1.1 |
| Strength deficit           | 59 | 63.4 |
| **Operated level**         |    |    |
| L3-L4                      | 15 | 16.1 |
| L4-L5                      | 28 | 30.1 |
| L3-L4 + L4-L5              | 6  | 6.5 |
| L4-L5 + L5-S1              | 44 | 47.3 |
| **Reoperation due to mis-positioning** | 1 | 1.1 |
| **Mean (SD) (min-max)**    |    |    |
| Age                        | 43.7 (9.0) | 27-68 |
| Time of prior treatment    | 16.4 (11.2) | 4 – 48 |
| ODI                        | 31.5 (8.3) | 10 – 50 |

SD: standard deviation; min-max: minimum and maximum values, respectively.

#### Statistical analysis

Qualitative variables were presented by absolute and relative frequencies, while quantitative variables were presented by measures of central tendency and respective confidence intervals of 95%. To analyze the adherence of the data to the normal distribution, the Shapiro-Wilk test was used. In the associations between the qualitative variables, the chi-square test with Yates correction was used. For the analysis of the magnitude of the associations, we used Poisson regression with robust variance, estimating the prevalence ratio and respective confidence intervals of 95%, adjusted for the variables that presented association.

The quantitative variables with symmetric distribution were compared by Student’s t-test for independent samples. The Mann-Whitney test was used for variables without normal distribution. To compare the differences in the pre- and postoperative moments, Student’s t-test was used for paired samples. Linear Regression was used to estimate the effects of surgical techniques on height and disc angulation and lumbar lordosis between the groups at the moments studied. For all analyses, a 5% significance level was adopted. The program used was Stata® (StataCorp., LC) 11.0

#### RESULTS

After establishment of the inclusion criteria, we selected 93 patients treated with intersomatic arthrodesis of the lumbar spine by structured iliac bone autograft or peek device and their medical records were reviewed. Sociodemographic and clinical characteristics are described in Table 1.

Table 2 compares the preoperative sociodemographic and clinical characteristics of Groups 1 and 2, demonstrating homogeneity, except that physical activity is higher in the group treated with preoperative PEEK device (p = 0.037) and the presence of degenerative discopathy with compression is higher in the group where the autograft was used (p = 0.016).

The preoperative clinical and radiographic characteristics of patients in both groups were similar in terms of the presence of sciatica (p = 0.683), strength deficit (p = 0.126), site of injury (L3-S1) (p = 0.630), functional capacity (p = 0.310), lumbar lordosis (p = 0.763) and Pfirrmann radiological classification (p = 0.617), disc height at both level L4-L5 (p = 0.139) and L5-S1 (p = 0.791) and disc angulation (p = 0.283 and p = 0.719). These data showed that there were no differences between the groups for all variables in the preoperative moment (Table 3).
Table 2. Comparison of sociodemographic and preoperative clinical characteristics of patients treated with lumbar arthrodesis using structured iliac bone autograft and polyether-ether-ketone polymer device.

| Variables                                   | Graft (n = 48; 51.6%) | PEEK (n = 45; 48.4%) | p*  
|---------------------------------------------|-----------------------|----------------------|------
| Male                                        | 40 (43.0)             | 27 (56.2)            | 26 (56.7) | 0.882 |
| More than one affected location             | 30 (67.7)             | 13 (27.1)            | 17 (37.8) | 0.270 |
| Comorbidities                              | 5 (18.5)              | 4 (8.3)              | 1 (2.2)  | 0.192 |
| Smoking habit                              | 26 (59.6)             | 14 (29.8)            | 12 (26.7) | 0.740 |
| Preoperative Physical Activity             | 37 (40.2)             | 14 (29.8)            | 23 (51.1) | 0.037 |
| Employment                                 | 83 (90.2)             | 44 (93.6)            | 39 (86.7) | 0.262 |

| Pathologies, n (%)                         |                       |                      |      
|--------------------------------------------|-----------------------|----------------------|------
| DD with compression                        | 58                    | 32 (66.7)            | 26 (57.8) |      |
| DD without compression                     | 6                     | 6 (12.5)             | 0 (0.0)  |      |
| Spondylolisthesis                          | 18                    | 9 (18.8)             | 9 (20.0)  | 0.016 |
| Central stenosis                           | 1                     | 0 (0)                | 1 (2.2)  |      |
| Pseudoarthrosis                            | 9                     | 1 (2.1)              | 8 (17.8)  |      |
| Synovial cyst                              | 1                     | 0 (0)                | 1 (2.2)  |      |

| Mean (Median) (95%CI)                      |                       |                      |      
|--------------------------------------------|-----------------------|----------------------|------
| Lumbar lordosis in degrees of angulation, mean (95%CI) | 53.0 (48.6; 57.5) | 54.1 (48.8; 59.3) | 0.763 |
| Height of discs in pixels, average (95%CI) | 19.1 (14.6; 23.5) | 27.5*** - |      |
| Disc angulation, mean (95%CI)              | 6.1 (-30.7; 42.9)    | 0.2*** -             |      |
| Disc angulation, mean (95%CI)              | 7.4 (5.4; 9.4)       | 7.9 (5.9; 9.9)       | 0.719 |

Table 3. Comparison of sociodemographic and preoperative clinical characteristics of patients treated with lumbar arthrodesis using structured iliac bone autograft and polyether-ether-ketone polymer device.

| Variables                                   | Graft (n = 48; 51.6%) | PEEK (n = 45; 48.4%) | p*  
|---------------------------------------------|-----------------------|----------------------|------
| Sciatica, n (%)                             | 39 (81.3)             | 38 (84.4)            | 0.683 |
| Strength deficit, n (%)                     | 34 (70.8)             | 25 (55.6)            | 0.126 |
| Lesion site, n (%)                          |                       |                      |      
| L3-L4                                       | 2 (4.2)               | 1 (1.8)              |      |
| L4-L5                                       | 21 (43.7)             | 29 (59.0)            |      |
| L5-S1                                       | 25 (52.1)             | 27 (47.3)            |      |
| Pfirrmann                                    |                       |                      |      
| III                                         | 3 (4.5)               | 4 (6.0)              |      |
| IV                                          | 59 (89.4)             | 57 (83.8)            |      |
| Oswestry (Disability classification), n (%) |                       |                      |      
| Minimal disability (0 – 20)                 | 0 (0.0)               | 1 (2.2)              |      |
| Moderate disability (21 – 40)               | 1 (2.1)               | 4 (8.9)              |      |
| Severe disability (41 – 60)                 | 21 (44.7)             | 18 (40.0)            |      |
| Crippled (61 – 100)                         | 15 (31.9)             | 17 (37.8)            |      |
| Bed-bound or exaggerating symptoms (80 – 100)| 10 (21.3)           | 5 (11.1)             |      |

The postoperative comparison is shown in Table 4. There was no significant difference between the groups in relation to sciatica (p = 0.547), improvement of muscle strength (p = 0.0820), return to work (p = 0.472), physical activity (p = 0.292) and months of absence from social insurance (p = 0.889).

Table 4. Comparison of postoperative clinical criteria of patients treated with lumbar arthrodesis with structured iliac bone autograft and the polyether-ether-ketone polymer device.

| Variables                                   | Graft (n = 48) | PEEK (n = 45) | p*  
|---------------------------------------------|---------------|---------------|------
| Sciatica, n (%)                             | 9 (18.8)      | 7 (15.6)      | 0.547 |
| Improvement                                 | 39 (81.2)     | 37 (82.2)     |      |
| Worsening                                   | 0 (0)         | 1 (2.2)       |      |
| Analysis of muscle strength, n (%)          | 34 (70.8)     | 24 (53.3)     | 0.082 |
| Return to work, n (%)                       | 37 (78.7)     | 32 (71.1)     | 0.472 |
| Practice of physical activity, n (%)        | 22 (46.8)     | 26 (57.8)     | 0.292 |
| Months of absence, median and 95%CI         | 7 (0.0; 9.0)  | 7.0 (6.0; 10.8) | 0.889 |

Table 5 shows that the two groups showed significant improvement in the Oswestry index after arthrodesis (p < 0.001), and there was no difference when comparing the two techniques (p > 0.05). Regarding radiological parameters, there was no significant difference when comparing lordosis, height and pre- and postoperative disc angulation in both groups (p > 0.05). Figure 4 shows the reduction of functional disability of patients one year after surgery, with no pre- and postoperative differences between them. There was a gain of 81.8% in patients operated using the technique with structured iliac bone autograft and 75.6% in patients with the PEEK device.
The autograft of the iliac crest is considered the gold standard for bone growth guidance and osteogenic factors.11,12 Spinal surgery.13 The osteoconductive and osteoinductive properties of the devices, especially for patients from developing countries.22-24 Compression. However, the main disadvantage is the high cost of the iliac bone autograft and the polyether-ether-ketone polymer device. 

**DISCUSSION**

The use of the intersomatic device in PEEK in lumbar arthrodesis is related to good results of gain of disc height, lumbar lordosis, improvement of functional capacity and indirect foraminal decompression. However, the main disadvantage is the high cost of the devices, especially for patients from developing countries and regions.22-24 In vertebral fusion surgery, the bone graft favors consolidation. Traditionally obtained from the iliac crest of the patient, it provides mineral architecture for bone growth guidance and osteogenic factors.11,12 The autograft of the iliac crest is considered the gold standard for spinal surgery.13 The osteoconductive and osteoinductive properties of the iliac autograft allow excellent fusion rates, in addition to low surgical cost.25-28 However, postoperative complications may occur in the place of collection, mainly pain, infection and bleeding.28 Postoperative pain at the site of bone graft collection is reported in 6% to 39% of cases. Many patients who have not undergone iliac bone graft collection may present pain in the vicinity of the posterolateral iliac spine after the surgery, overestimating the true incidence of pain from bone graft collection.29 There is no consensus in the literature on the prevalence of pain at the collection site compared to residual low back pain in the patient, favoring the use of autologous bone graft, which is a low-cost and effective option for vertebral arthrodesis.29

In the present study, pain in the collection site of bone graft was not a limiting factor. We believe that the performance of minimal muscle disinsertion in the site of graft collection, performed in all patients, contributed to the reduction of pain. Park et al.30 reaffirmed that the iliac bone graft has properties of osteoconduction, osteoinduction and osteogenicity, having the chemistry, structure and porosity for bone formation due to the presence of active and latent osteoblasts. Spongy bones are easily revascularized and quickly incorporated, with no concerns about disease transmission and no risk of immunogenicity. Its use brings fusion rates of 80-93% according to the aforementioned author. Intersomatic fusion can be performed using allograft, iliac autograft, impacted local autograft, carbon fiber cage, titanium cage, PEEK cage, among others.31 Buttermann et al.25 compared clinically and radiographically the results of lumbar arthrodesis using femoral ring allograft and iliac crest autograft. They observed a pseudoarthrosis rate of 6% in cases where allografts were used and no pseudoarthrosis when the autograft was used. We believe that careful discectomy, as well as sensible preparation of terminal plates and use of iliac autograft favored the intersomatic fusion index for both groups of our study.

Autologous bone fragments obtained at laminectomy (local autograft) are often used and have similar fusion rates but are not always available in sufficient quantity.31-35

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**Table 5.** Clinical and radiological characteristics in the pre- and postoperative period of patients treated with lumbar arthrodesis using structured iliac bone autograft compared to the polyether-ether-ketone polymer device.

| Variables | Preoperative | Postoperative | Difference | p* | Preoperative | Postoperative | Difference | p* | Postoperative Difference | p** |
|-----------|--------------|---------------|------------|----|--------------|---------------|------------|----|------------------------|------|
| Oswestry (score in % mean, 95%CI) | 64.7 (60.1; 69.3) | 20 (13.9; 26.1) | 44.7 (50.8; 38.6) | <0.001 | 61.2 (55.9; 66.4) | 22.3 (16.4; 28.1) | 38.9 (45.0; 32.7) | <0.001 | 5.0 (–0.08; 10.1) | 0.060 |
| Lumbar lordosis (mean angulation, 95%CI) | 53.5 (48.8; 58.2) | 52.9 (48.3; 57.5) | 0.58 (–4.6; 3.5) | 0.769 | 53.6 (48.3; 58.9) | 54.1 (50.1; 58.0) | 0.48 (–2.5; 3.5) | 0.747 | 2.4 (–3.2; 8.0) | 0.388 |
| Disc height (average pixel count, 95%CI) | 19.1 (14.6; 23.5) | 13 (–7.0; 33.0) | 6.1 (–30.5; 18.4) | 0.195 | 27.4 (23.3; 30.6) | 39.3 (22.7; 30.2) | 11.8 (–3.2; 2.2) | 0.724 | 1.2 (–2.9; 0.9) | 0.548 |
| L3-L4*** | 22.2 (17.6; 28.8) | 20.5 (15.8; 23.3) | 1.6 (–4.4; 1.2) | 0.242 | 27 (23.3; 30.6) | 26.5 (22.7; 30.2) | 0.5 (–3.2; 2.2) | 0.148 | 0.7 (–4.3; 4.1) | 0.970 |
| L5-S1 | 24.5 (10.1; 28.8) | 22.6 (19.1; 26.2) | 1.8 (–5.3; 1.7) | 0.29 | 25 (21.3; 28.7) | 23.1 (19.1; 27.1) | 1.9 (–4.5; 0.7) | 0.187 | 0.3 (–4.3; 4.1) | 0.970 |
| Disc angulation (mean in degrees, 95%CI) | 6.1 (–30.7; 42.9) | 5.2 (–10.0; 20.4) | –0.9 (–53.0; 51.2) | 0.862 | 0.2 (–3.4; 7.2) | 1.5 (5.8; 7.8) | 3.3 (–0.1; 3.1) | 0.059 | 1.0 (–0.94; 3.2) | 0.285 |
| L3-L4*** | 6.9 (4.7; 9.0) | 7.3 (5.7; 8.8) | 0.4 (–0.9; 1.7) | 0.533 | 3.4 (5.8; 7.8) | 6.8 (5.8; 7.8) | 3.3 (0.1; 3.1) | 0.059 | 1.0 (–0.94; 3.2) | 0.285 |
| L4-L5 | 7.6 (5.5; 9.6) | 9.2 (7.6; 10.7) | 1.6 (–0.14; 3.3) | 0.07 | 7.4 (5.6; 9.1) | 7.6 (6.0; 9.2) | 0.2 (–1.6; 2.0) | 0.807 | 1.4 (–3.9; 1.1) | 0.269 |

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**Figure 4.** Comparison of differences in the percentage of improvement of the Oswestry Disability index of patients in the pre- and postoperative times (one year) treated with lumbar arthrodesis using structured iliac bone autograft and the polyether-ether-ketone polymer device.
Martineau et al. evaluated the disc height and lumbar lordosis comparing the TLIF and PLIF techniques in a retrospective study, concluding that both techniques showed benefits, with no significant difference when comparing them. In the present study, lumbar lordosis and pre- and postoperative disc height were compared. There were no statistically significant differences comparing within or between the two groups.

Lv et al. compared the TLIF technique with cage and impacted local autograft and concluded that there were no significant differences in clinical (ODI) and radiological (disc height and vertebral fusion) results. In addition, they concluded that the procedure without the cage has lower cost and thus the impacted bone graft is a good option for cases of single-level TLIF, especially in less developed regions. Zhang et al. studied spondylolisthesis in two lumbar segments operated through the PLIF technique and compared the group with cage and the group with local autograft. They observed that there was a high degree of loss in disc height in the local autograft group, concluding that the use of the cage is better for height maintenance of the intervertebral disc. The present study demonstrated divergent results since no significant differences were found in disc height between the groups. This can be explained by the fact that we used structured iliac autograft made in the form of a cage, a factor that may have contributed to the maintenance of disc height, considering that in most cases the removed local graft is fragmented and does not provide support.

Wang et al. compared results of the posterior arch autograft associated with a facet joint as a spacer and another group treated with a PEEK cage filled with autograft in the treatment of lumbar isthmic spondylolisthesis in adults and obtained similar clinical and radiographic results in both groups. The use of an intersomatic device in PEEK increases its cost, so a local autograft using the facet joint for intersomatic fusion was effective and accessible in the treatment of lumbar isthmic spondylolisthesis. Wu et al. studied a new intersomatic allograft device designed for TLIF, using ODI, the Visual Analogue Scale, disc height and vertebral fusion with 1-year follow-up, and concluded that there was no statistical difference in relation to disc height compared to PEEK, reaching consolidation levels of 98.2%.

Studies on device sinking in vertebral bodies conducted by Choi et al. and Marino concluded that small loss of disc height and lumbar lordosis are expected in intersomatic arthrodesis and that they do not affect clinical outcomes. Le et al. concluded that loss of disc height and lumbar lordosis are related to the consolidation and accommodation of the sagittal balance of the spine, to the realization of direct decompression of the nerve root or the cauda equina and especially to the excessive sinking of the intersomatic device in the terminal plates. In our study there were no differences in relation to lumbar lordosis and disc height within or between the groups, both before and after the surgery. The limitations of the study are related to retrospective design as well as data surveying and collection. The inconsistency of data in medical records can be considered a form of measurement bias in retrospective cohort studies. Furthermore, the tests and reports in the database do not always present quality of completion and information.

CONCLUSION

We observed that the TLIF technique using structured iliac autograft may be a good option as it presents low cost and good clinical results, comparable to the synthetic intersomatic spacer.

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