



CENTER FOR DISRUPTIVE
MUSCULOSKELETAL INNOVATIONS

Revision Spine Surgery & The Role of Infection in Pseudarthrosis

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Revision Spine Surgery

- Revision surgery for spine cases is among the highest of all surgical specialties
- Revision surgery can significantly affect the assessment of value in health care by incurring increased costs against unfavorable outcomes of care.
- This project seeks to categorize and quantify why patients required reoperation at our institution and determine whether there are patient factors that are commonly associated with the need for revision surgery.

Revision Spine Surgery

- Phase 1 analyses focused on all patients who had revision surgery from 2/16 to 2/17
- Phase 2 analyses to focus on the subset of patients within this cohort who were revised for pseudarthrosis.
 - Specifically: What is the prevalence of sub-clinical infection in patients who presented for revision surgery with a diagnosis of pseudarthrosis.

Phase 1 Results:

- Between 2/16 and 2/17
 - 344 patients underwent at least one revision procedure
 - 251 patients required at least 1 revision fusion procedure
- Of the 251 pts requiring revision fusion
 - 144 female (57%), 107 male (43%)
 - Mean age 62.9 yrs, Median age 64.5 yrs
 - Min age 29, Max age 86
 - Mean ASA score 2.46, min 1 max 4
 - Mean BMI 29

Phase 1 Results:

- There were over 80 unique diagnoses associated with the 251 surgeries
- Patients presented with 1-4 diagnoses at the time of surgery.
- Among the most prevalent were:
 - Pseudarthrosis (n=66)
 - Adj. segment disease (n=57)
 - Instrumentation failure (n=52)
 - Flatback syndrome (n=38)
 - Infection/wound related (n=26)

Phase 1 Results:

- Pts had between 1-10 spine surgeries at the same region prior to their most recent revision surgery
 - Avg. 2.5 prior surgeries
- Avg. number of levels treated at revision operation = 7
 - Min = 1
 - Max = 16
- Avg length of construct prior to revision operation = 5
 - Min = 1
 - Max = 21

Phase 1 Limitations:

- Limitations:
 - Heterogeneous cohort
 - Difficult to establish a “control group”
 - Single center experience (limited generalizability)
 - Limited to descriptive statistics

Phase 2 Plan

- *What is the prevalence of sub-clinical infection in patients who presented for revision surgery with a diagnosis of pseudarthrosis.*
- Lab results from intra-op tissue samples to determine prevalence of subclinical infection.
 - 66 cases of pseudarthrosis
 - 2 cases accompanied by chronic spinal infection
 - 18 cases accompanied by failed instrumentation
- Increase N if necessary by extending beyond 1 year

Phase 2 Plan

- We have collected:
 - DOB/Age at surgery
 - Gender
 - Primary Dx
 - Revision Dx
 - # of prior spine procedures at same region of spine
 - UIV and LIV of both primary and most recent revision surgery
 - Hx of cement
 - Hx of surgical complications
 - Hx of iliac fixation
 - Height/Weight/BMI
 - ASA
 - Comorbidities

Questions?

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