

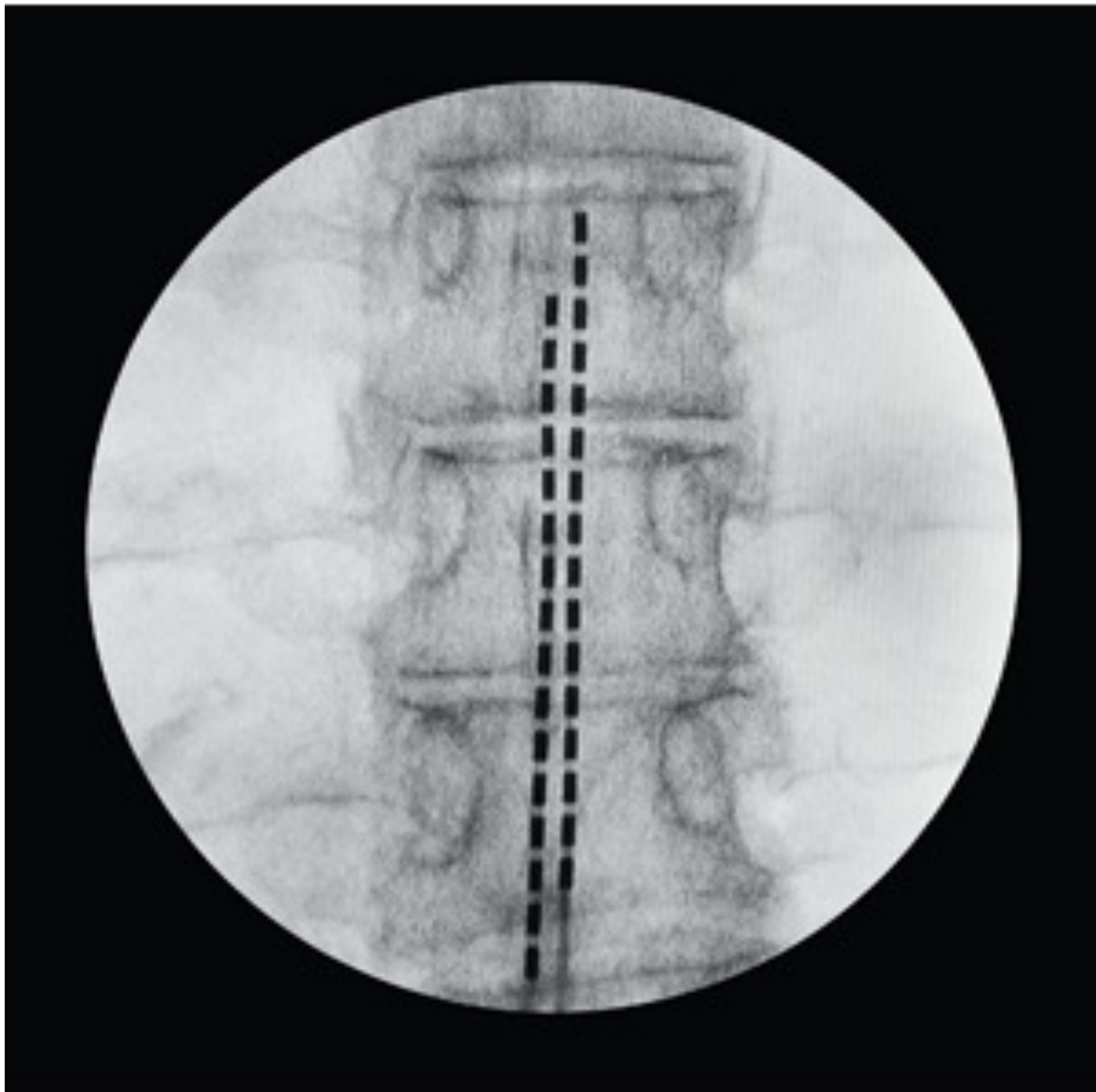
Patient Characteristics Associated with Spinal Cord Stimulator Trial Success

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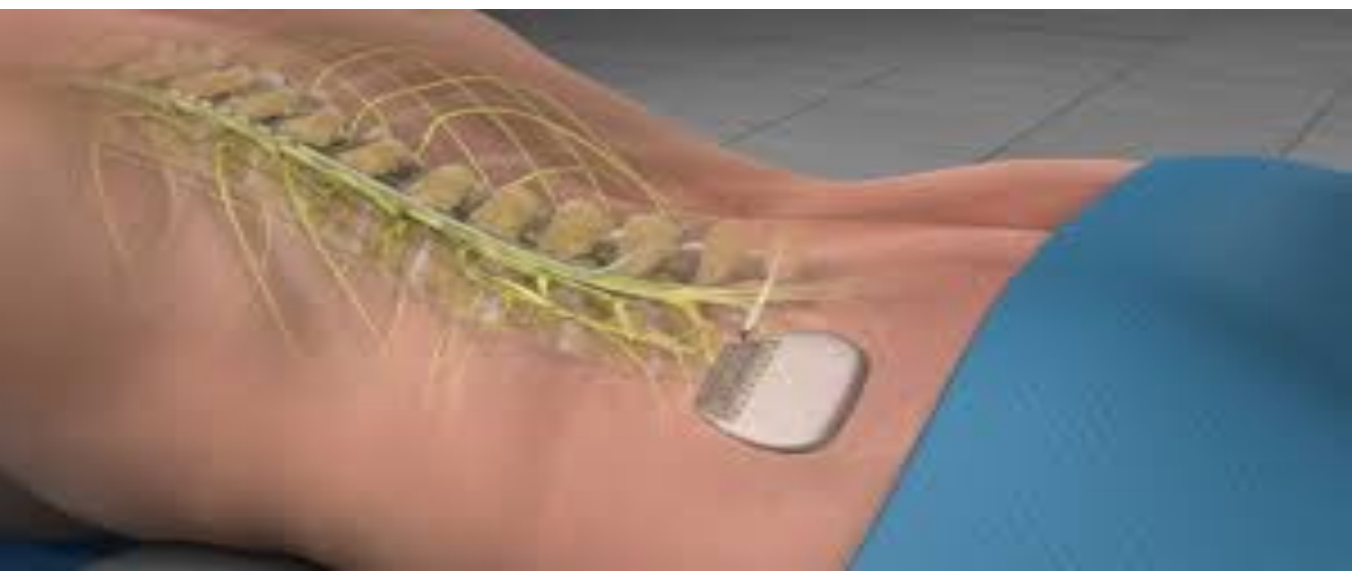
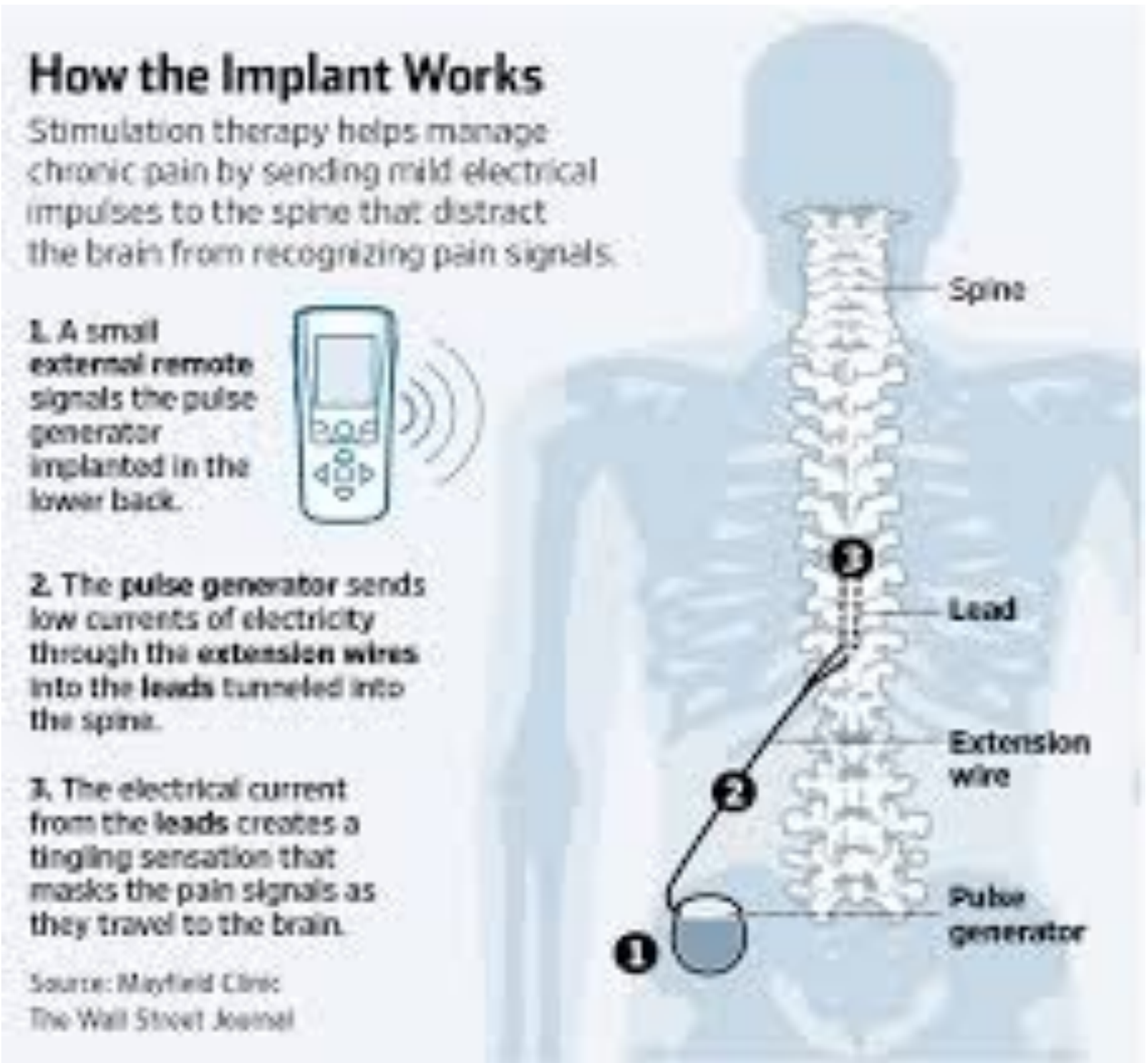
BACKGROUND

- Chronic back pain ranks among the top 10 contributors to disability-adjusted life years worldwide
- Spinal cord stimulator devices (SCS) effectively treat refractory chronic back pain by altering pain perception through neuromodulation of the dorsal spinal cord
- To assess SCS efficacy, patients first undergo a temporary SCS trial after which, if pain symptoms improve, they receive permanent SCS implantation



BACKGROUND/METHODS

- To optimize outcomes and minimize unsuccessful implantations, it's crucial to identify candidates most likely to benefit from the procedure
- This retrospective study aimed to identify predictors of successful SCS trials which would inform patients and physicians of modifiable factors that increase the likelihood of SCS success
- 189 individuals in the Mount Sinai Health System experiencing chronic back pain and either had a successful percutaneous trial (with subsequent implantation) or an unsuccessful trial (without subsequent implantation) were included
- Patient demographics, current medication use, morphine milliequivalents/day (MME/day), previous surgeries, comorbidities, and functional metrics were obtained
- We identified factors significantly associated with successful SCS trials and subsequent lead and generator implantation using descriptive statistics and multivariate logistic regression models

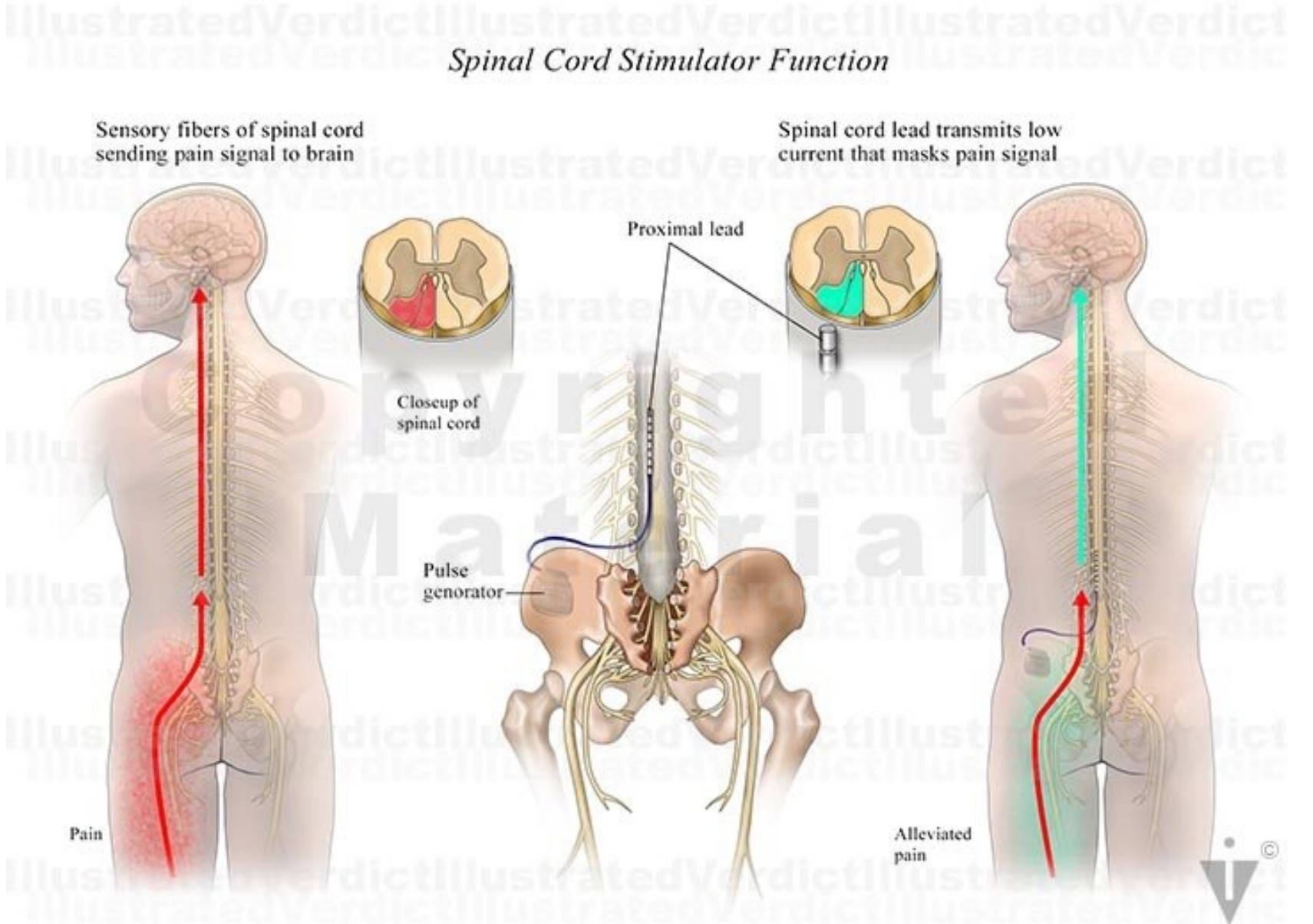


RESULTS

- Factors significantly associated with successful SCS trials included increased age ($p = 0.04$), BMI > 30 ($p = 0.02$), diabetes mellitus ($p = 0.03$) and patients with a longer median duration of pain ($p = 0.02$)
- A greater percentage of patients with SCS success were utilizing > 50 MME/day ($p = 0.01$) and SCS success itself was associated with greater MME/day use ($p = 0.03$)
- Based on multivariate logistic regression model, patients with a history of previous spine surgery had a significantly higher likelihood of SCS success (OR 2.4, CI 1.1-5.5, $p = 0.04$)
- Patients with > 50 MME/day were significantly associated with SCS success (OR 4.4, CI 1.5-15.1, $p = 0.01$)
- We found a significant 28% decrease in pain scores vs. baseline after SCS trial for those who received permanent generator implantation ($p = 0.001$) over a span of 12 months
- Previous smoking history and Medicaid insurance status were significantly associated with SCS explantation (OR 3.4, CI 1.1-11.4, $p = 0.04$; OR 6.7, CI 1.4-39.9, $p = 0.02$)
- Duration of pain was significantly associated with decreased likelihood of SCS explantation (OR 0.84, CI 0.71-0.96, $p = 0.02$)

DISCUSSION

- Analysis of medical records from 189 patients within the Mount Sinai medical system revealed significant patient-related factors associated with a successful SCS trial and also explantation
- Patients with increased opioid use and previous spine surgeries were more likely to benefit from an SCS trial and subsequent implantation
- These predictors are valuable for determining SCS candidacy
- Future research will investigate these predictors in a larger sample to validate and expand upon current findings



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