EP142 12-MONTH CLINICAL OUTCOMES AND ENERGY MODELING FROM A PROSPECTIVE, MULTI-CENTER STUDY OF A DIFFERENTIAL TARGET MULTIPLEXED™ SPINAL CORD STIMULATION DERIVATIVE

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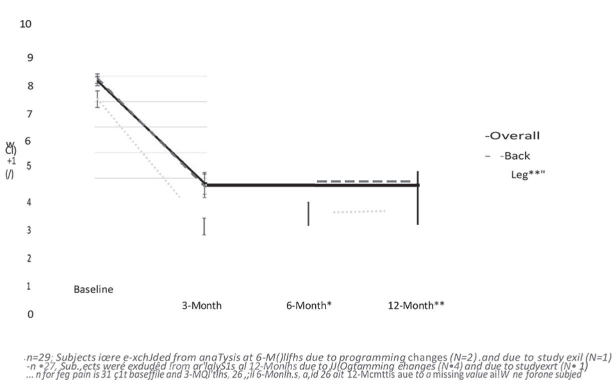
Background and Aims Differential Target Multiplexed™ spinal cord stimulation (DTM™ SCS) is an established therapy that has shown superior back pain relief to traditional SCS [1]. Derivatives of DTM™ are being investigated to understand opportunities for therapy personalization. This prospective, multi-center, open- label, post-market study evaluated the efficacy and energy use of reduced-energy DTMTM derivative (DTM™ endurance).

Methods SCS candidates with an overall Visual Analog Score (VAS) of ≥6 with moderate to severe chronic, intractable back and/or leg pain were eligible. Eligible subjects underwent an SCS trial programmed with DTM™ endurance and proceeded in study if successful. Evaluation visits occurred at 1-, 3-, 6-, and 12-months post-activation. Programming data was used to calculate battery energy usage (Intellis™, Medtronic). 2 tailored specific and validated models utilizing real patient programming data were used for determining recharge interval and device longevity.

Results 57 subjects enrolled at 12 US sites from November 2020 – June 2021 (demographics in table 1). Post-laminectomy pain/PSPS was the main etiology (91.2%). 49 subjects underwent trial, 35 were implanted, and 27 completed the 12-Month visit. Changes in overall, back, and leg pain were clinically sustained through 12-months (figure 1). Outcomes including quality of life, disability, and safety will be presented. Therapy energy usage was consistent throughout the duration of the study, with a mean current usage of 55 µC/s at 12-months. Amplitude ranges, cycling parameters, recharge interval and duration, and longevity will be reported.



Abstract EP142 Figure 1 Visual analog sea le (VAS} scores for overall, back and leg pain. Values shown represent mean VAS scores (scale of 0 ta 10, with 10 being the most pain} tram per-protocol subjects at baseline, 3-month, 6-month and 12-month follow-up. Error bars represent Standard Error (SE}

Abstract EP142 Table 1 Baseline demographics for enrolled and implanted subjects

Subject Character1istics	Enrolled (N=57)	Implanted (N=35)	
Age (years)			
Mean (SDJ	63.2 (11.93)	62.4 (12.70}	
Me-dian	67	67	
Min to Max	40.0to85.0	40.0to 85.0	
Sex (n.%}			
F	33 {57.9%)	21 {60.0%)	
M	24 (42.1%)	14 (40.0%)	
Ethnicity (n,%)			
Not Hiispanic Or latino	53 (93.0%)	33 (94.3%)	
Hispanie Or latino	3 (5.3%)	**1** (2.9%)	
Not Reported	1 (1.8%)	1 (2.9%)	
Race(n,%)	54 (94.7%)	34 (97.1%)	
White			
Asi1an	1 (1.8%)	0(0.0%)	
Black or Af,rican American	1 (1..8%)	**1** (2.9%)	
Not Reported	1 (1.8%)	0(0.0%)	
Time since pa,in o:nset (y,ears)			
Mean (SD)	13.4 (13.27)	13.7 (13.44}	
Median	7	8	
Min toMax	1.0 to 60.0	1.0 to 60.0	
Re!eva,nt• Surgi;cal History (n,%)			
At LeastOne Relevanr Suirgery		50 (87.7%)	31 (88.6%)
No Surgical Hisfory		7 (12.3%)	4(11.4%)
Niumber of Surgeries			
Mean {SD)		1.7 (1.48)	1.8 (1.75)
Median		1	1
Min toMax		O.Oto9.0	O.Oto 9.0
rel.:1œd **lo** tlle SCS **cl!NÎce/pai11**			

Conclusions The use of a DTM™ endurance in this study resulted in clinically meaningful pain relief with reduced energy usage.

IRB Approval – Initial IRB Approval – Initial

EP143 EFFECT OF PERIOPERATIVE COVID 19 INFECTION ON POSTOPERATIVE COMPLICATION IN OBSTETRIC ANESTHESIA: USING KOREAN NATIONAL HEALTH INSURANCE SERVICE DATA

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Background and Aims Recent reviews have reported a higher incidence for pregnant patients to be intensive care unit admission and mechanical ventilation that experiencing severe COVID 19. This study aims to evaluate the impact of COVID-19 infection on obstetric anesthesia.

Methods The study population consisted of patients who underwent cesarean section procedures covered by the Korean National Health Insurance System (KNHI) between January 1,

2020, and December 31, 2021. The KNHI provides coverage to approximately 97% of Koreans, while the remaining 3% who cannot afford national insurance are covered by the Medical Aid Program. The database used in this study was provided by the National Health Insurance Sharing Service, which includes virtually all operations performed in Korea during the study period. The study protocol was reviewed by the Institutional Review Board of Seoul Paik Hospital (IRB No PAIK 2023-05-001) and was exempted due to the use of de-identified administrative data. The major inclusion criterion was admission with operation codes specific to cesarean section procedures (R4514, R4516, R4517, R4518, R4519, R4520, R4507, R4508, R4509, R4510, R5001, R5002). The study assessed mortality and pulmonary complications.

Results 75,703 patients were had cesarean section, among them 383 patients (0.51%) with diagnosis code (U071) within 30 days before surgery or within 30 days after surgery. During the period, mortality were 0.05%. Overall and 30 days' pulmonary complications were 1.06% and 0.15%. Mortality were increased in general anesthesia than regional anesthesia.

Conclusions The findings support the consideration of regional anesthesia as a preferred choice in cesarean section during the COVID-19 pandemic.

EP143 REGENERATION POTENCY OF TENDON DERIVED STEM CELL IN TEDINOPATHY CAN BE SUPPRESSED BY PAIN MEDIATORS: IN VITRO STUDY

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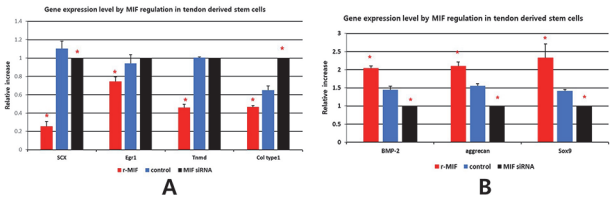
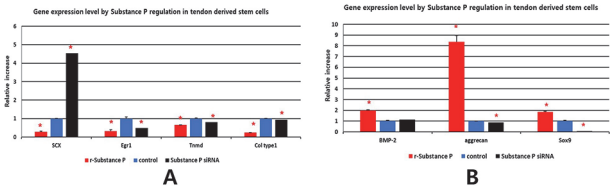
Background and Aims Tendon-derived stem cells (TDSCs) in tendons are responsible for tenogenesis and tendon regeneration. Aberrant nontenogenic differentiation of TDSCs, such as chondrogenic metaplasia, have been suggested as a pathogenesis of tendinopathy. Additionally, pain mediators, such as substance P, calcitonin gene-related peptide (CGRP) and macrophage migration inhibitory factor (MIF), have been increasingly discussed as an important factor in the pathogenesis of tendinopathy. The purpose was to evaluate whether the pain mediator affects differentiation of TDSC.

Methods TDSC was isolated and cultured from the Achilles tendon of SD rats. TDSC were treated with recombinant MIF, recombinant substance P, or recombinant CGRP. For gene knockdown, TDSC were transfected with MIF small interfering RNA (siRNA), substance P siRNA, or CGRP siRNA. The TDSC culture mediums were prepared for RT-PCR. Expression of tenogenic genes (SCX, Egr1, Tnmd, Col type 1) and chondrogenic genes (BMP2, aggrecan, Sox9) of TDSC were compared with control group.

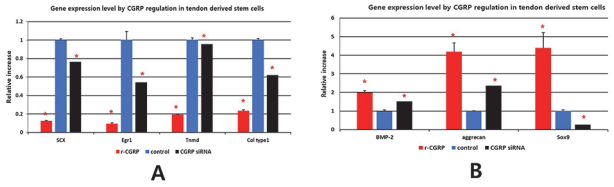
Results Treatment of recombinant pain mediators (MIF, Substance P or CGRP) in TDSC showed down-regulated tenogenic genes expression (figure 1A, 2A, 3A) and up-regulated chondrogenic genes expression (Fig 1B, 2B, 3B) compared with control ($p<.05$). Knockdown of pain mediator genes (MIF, Substance P or CGRP) in TDSC showed down-regulated chondrogenic gene expression (figure 1B, 2B, 3B) while expression was up-regulated in a few tenogenic gene (Col type 1 with MIF and SCX with Substance P).



Abstract EP143 Figure 1 A. The tenogenic Mrna expression levels of TDSC in recombinant MIF and knockdown of MIF. (*P <0.05 vs. control) B. The chondrogenic mRNA expression levels of TDSC in recombinant MIF and knockdown of MIF. (*P <0.05 vs. control)



Abstract EP143 Figure 2 A. The tenogenic mRNA expression levels of TDSC in recombinant Substance P and knockdown of Substance P. (*P <0.05 vs. control) B. The chondrogenic mRNA expression levels of TDSC in recombinant CGRP and knockdown of CGRP. (*P <0.05 vs. control)



Abstract EP143 Figure 3 A. The tenogenic mRNA expression levels of TDSC in recombinant CGRP and knockdown of CGRP. (*P <0.05 vs. control) B. The chondrogenic mRNA expression levels of TDSC in recombinant CGRP and knockdown of CGRP. (*P <0.05 vs. control)

Conclusions Pain mediators, such as Substance P, CGRP and MIF, appear to be associated with pathogenesis of tendinopathy via enhance the aberrant chondrogenic differentiation and suppression of tenogenic differentiation of TDSC.

[18-100-D3-N] Protocol Approval of Animal Study Plan

EP144 EFFICACY OF PERICAPSULAR NERVE GROUP BLOCK AFTER TOTAL HIP ARTHROPLASTY SURGERY

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Background and Aims Total hip arthroplasty (THA) is associated with severe postoperative pain, traditionally managed using systemic analgesia alone.The Pericapsular Nerve Group Block (PENG Block) provides an effective blockade to the articular branches of the anterior hip joint.It may allow early rehabilitation, with a potential motor-sparing effect. The aim of the study: Evaluate the efficacy of the PENG block for intra and postoperative pain control in THA.