STEM CELLS AND INTERSTITIAL CYSTITIS CHRONIC BLADDER PAIN
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UNDERSTANDING CELL THERAPY AS A TREATMENT FOR CHRONIC BLADDER PAIN

• IC affects 4 to 12 million people with women affected ten times more than men.

• Many of the current IC/PBS treatments clinically focus on masking symptoms of pain, contributing to patient reliance on narcotics.

• IC patients are known to endure multiple invasive medical and surgical procedures.

• There appear to be few treatment options for associated with high levels of evidence of efficacy.

• IC is often associated with depression, suicidal ideation, and the adverse financial effects of chronic pain and disability.
PATIENTS WITH IC HAVE DEFICIENT BLADDER WALL PROTECTIVE GLYCOSAMINOCYCLCAN LAYER
Since Interstitial Cystitis/Painful Bladder Syndrome has degenerative aspects, autoimmune features, and is clinically associated with significant pain and inflammation, an investigation is indicated to determine whether autologous (SVF-stem cells from fat) can mitigate IC symptoms in 109 individuals.
What is a Stem Cell?

• These are repair cells that are “looking for a job”

• Stem cells can proliferate (replicate into more stem cells)

• Stem cells can differentiate (turn into other specific cells or tissues)

• These actions are based on signals (Growth Factors) from damaged tissues

• Adult stem cells are abundant in fat
What Is Regenerative Medicine?

• Uses stem cells to repair or replace damaged and defective tissues and organs.

• Stem Cells create living and functional tissues (not scar).
BIOLOGIC SURVIVAL DEPENDS ON TWO SYSTEMS

WHITE BLOOD CELLS
DEFENSE AGAINST DAMAGE - THIS IS OUR IMMUNE SYSTEMS

STEM CELLS
HEALING FROM DAMAGE - THIS IS OUR REPAIR SYSTEMS
ENEMIES OF SURVIVAL ON PLANET EARTH

- injuries and accidents
- radiation
- surgery
- violence
- infection
- drugs and medications
- behavioral (tobacco and vaping), overuse of body
- genetic conditions
- toxins
- cancer
- Aging
- Immune system treachery
HOMING PROPERTY—
Cells respond to appropriate biochemical signals released from tissue injury, inflammation, degeneration, disease, or cell death.

ACTIVATION PROPERTY—
Cells promote signal mediated effects to repair damaged target tissue. Cells may also form new cells and tissues.
EFFECTS OF STEM CELLS ON THE BODY

• ANTI-INFLAMMATORY

• TISSUE REPAIR AND REGENERATION (HEALING)

• IMMUNO-MODULATION

• DECREASE IN OVER-STIMULATION OF AFFERENT PAIN C FIBERS
Interstitial Cystitis 3 pronged attack
91 women and 18 men diagnosed with IC were enrolled in the IRB approved research study.
The study was patient funded.
18 different facilities from around the world.
Pain scores and O’Leary Sant with PUF scores were measured.
No serious side effects noted.
This 18 center study is the largest human study to date using cell therapy to treat IC and is the first to use autologous stem cells for the mitigation of IC.
When asked whether their condition was improved by the treatment, results showed that 78 out of 109 patients (71.5%) reported improvement in their IC.

Visual analog pain scores decreased (5.14 baseline to 3.67, p<.05).

(PUF) Pelvic pain scores demonstrated that symptom and bother scores all improved

The O’Leary-Sant scores decreased from baseline 22.59 to 14.76 (p<.05).

There were no significant differences between men and women on the O’Leary-Sant scores.
Personal cell therapy for interstitial cystitis with autologous stromal vascular fraction stem cells

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Abstract

Background: The objective of this study was to evaluate whether autologous stem-cell-based therapy may mitigate the symptoms of interstitial cystitis.

Methods: Stromal vascular fraction (SVF) rich in stem cells and derived from autologous adipose tissue was deployed into 109 men and women with interstitial cystitis/painful bladder syndrome as a surgical procedure. This stem-cell-rich biologic product was injected both systemically and regionally into pelvic floor targets. Patients were queried about quality of life and symptom and bother subjective outcomes tests every 3 months for 2 years.

Results: A total of 78 patients reported a positive response at 1 year. Symptom and bother metrics were statistically improved at 1 year. There were minimal adverse events associated with the harvesting, procurement, and clinical deployment of SVF.

Conclusions: Interstitial cystitis is a complex clinical problem that is known for its resistance to conventional therapies. SVF as an autologous personalized regenerative strategy shows good safety and efficacy and may potentially have a role in the mitigation of interstitial cystitis.

Keywords: autologous stem cells, chronic pelvic pain, interstitial cystitis, stromal vascular fraction

Introduction

Surgically procured stromal vascular fraction (SVF) derived at the point of care is an autologous biologic product derived from the enzymatic digestion of liposapce and is widely being investigated for its regenerative, immunomodulatory, and anti-inflammatory properties. As interstitial cystitis/PBS has regenerative aspects, it is clinically associated with significant pain and inflammation, an investigation is indicated to determine whether autologous SVF as a form of cell therapy can mitigate IC symptoms. This prospective study consists of a pilot series of 109 IC patients who underwent treatment with combined regional and systemic deployment of autologous SVF and were assessed with self-reported subjective outcomes testing to evaluate safety and clinical efficacy.
71.5% of the patients reported improvement in quality of life
Any Questions?
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