

Assessment of Virtual Reality on Pain and Anxiety at an Infusion Clinic Setting in Patients with Inflammatory Bowel Disease: A Pilot Acceptability Study

Edward Cay, DO¹, Barbara Schmidtman, PhD², Thomas Birris, MD³

1. Spectrum Health Lakeland, St. Joseph, MI, 2. Spectrum Health, Grand Rapids, MI, 3. Great Lakes Gastroenterology, St. Joseph, MI

Introduction

Inflammatory Bowel Disease (IBD)

- Chronic relapsing and remitting inflammatory condition of the bowel lumen
- While abdominal pain is most severe when acute intestinal inflammation is present, many patients with IBD in endoscopic remission continue to have abdominal pain.
- Psychological conditions like anxiety may exacerbate symptoms and cause more frequent flares, leading to increased hospitalizations.

Virtual Reality (VR)

- Non-pharmacological methods such as virtual reality have been shown to decrease pain and anxiety in inpatient settings.
- While there has been support of VR in IBD patients in a clinic setting, no studies have assessed the use of VR in IBD patients at infusion centers, an important aspect of IBD management.
- If VR can improve both pain and anxiety, then it may lead to improved health outcomes.

Study Aim

To investigate the approval of VR as well as its effects on pain and anxiety in patients with IBD at an infusion clinic setting.

Methods

- Prospective, single-center, paired-sample study of adult patients with IBD
 - Pain and anxiety were measured before and after their regular infusion appointment
 - VR was used during their subsequent session, with pain and anxiety measured before and after their infusion
 - At the end of the study, there was an assessment of the feasibility of VR for future encounters.
- Measures**
 - Anxiety: Beck Anxiety Inventory (BAI)
 - Pain: Short-Form McGill Pain Questionnaire (SF-MPQ)
- VR Headset**
 - Included immersive options such as:
 - guided meditations
 - deep sea diving
 - Prohibited content that would cause potential distress.
- Paired samples t-tests** - utilized to compare any differences in pain or anxiety during their infusion therapy, with and without use of virtual reality.

Results

Table 1. Patient Demographics

Age	Mean 42.07 years
Sex	
Male	8 (57%)
Female	6 (43%)
IBD Type	
Crohn's Disease	8 (57%)
Ulcerative Colitis	6 (43%)
Infusion Medication	
Infliximab	7 (50%)
Vedolizumab	7 (50%)
Percent of Time with VR During Infusion	
Total	Mean: 74%
Infliximab	Mean: 50%
Vedolizumab	Mean: 98%
Chronic Opioid Use	2 (14%)
Pharmacologic Therapy for Anxiety	4 (29%)
Nonprescription Therapy for Anxiety/Pain	5 (36%)

Table 2. Paired Samples T-test for Anxiety & Pain

Beck Anxiety Inventory (BAI)	t = -0.244, p-value = 0.405
Short Form McGill Pain Questionnaire (SF-MPQ)	
Sensory Score	t = 0.000, p-value = 0.500
Affective Score	t = -0.812, p-value = 0.216
Visual Analog Scale (VAS)	t = -0.960, p-value = 0.177
Present Pain Intensity	t = -1.249, p-value = 0.117
Total Score	t = -0.336, p-value = 0.371

Table 3. Acceptability of VR

Would Like to Use VR During Future Appointments	10 (71%)
Rate Your Experience 1 (Dislike) to 5 (Indifferent) to 9 (Enjoyed)	Mean: 7.79
Infusion Experience Felt Faster with VR	12 (86%)
Forgot was in Infusion Clinic with VR	3 (21%)

Discussion

- In this investigation, we report data of 14 adult patients with IBD (Table 1.).
 - 57% Crohn's Disease and 43% Ulcerative Colitis
 - Mean age was 42.07 years
- Usage of VR varied between infliximab and vedolizumab (Table 1.), likely due to the different lengths of time required for each infusion.
 - Infliximab
 - 50% of infusion time with VR
 - ~2 hour infusion
 - Vedolizumab
 - 98% of infusion time with VR
 - ~30 minute infusion
- Preliminary analyses show VR had no significant changes in pain or anxiety (Figure 2.)
 - BAI: (t = -0.244, p-value = 0.405)
 - SF-MPQ (t = -0.336, p-value = 0.371)
- Participants reported positive experiences with VR (Figure 3.)
 - Patients rated their experience an average of 7.79 on a scale of 1 to 9
 - 71% of patients reported they would like to use VR during future appointments

Conclusions

This pilot study supports the acceptability of VR in an infusion clinic setting and provides a framework for further assessment of pain and anxiety in future larger randomized control trials.

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