Morning Light Treatment for Inflammatory Bowel Disease: A Clinical Trial

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INTRODUCTION

- IBD is a chronic condition affecting 3+ million Americans, with symptoms including gastrointestinal distress, fatigue, depression, and poor sleep.
- Despite immune-targeted therapies, many patients continue to experience symptom flares and poor quality of life.
- Circadian disruption is linked to worse IBD symptoms, making it a potential IBD target[3].
- Morning light treatment combined with a regularly timed sleep schedule can reduce circadian rhythm disruptions[1].
- Our research group has previously tested a commercially available light device (Re-Timer), in patients with chronic pain and found improvements in sleep, mood, and pain[2].
- However, no studies have tested morning light treatment for IBD- this is the first NIH-funded randomized controlled trial exploring its potential benefits.

STUDY OBJECTIVES

- **Primary Aim:** Test if morning light therapy improves quality of life in IBD patients.
- **Secondary Aim:** Assess effects on clinical disease activity, sleep, mood, and GI inflammation (fecal calprotectin).

INCLUSION & EXCLUSION CRITERA

- **Key Inclusion Criteria**
  - Age ≥ 18 years
  - Biopsy-confirmed IBD (Crohn's or Ulcerative Colitis)
  - Impaired quality of life (SIBDQ < 60)
  - Recent abdominal pain or bowel symptoms
- **Key Exclusion Criteria**
  - Recent steroid changes (≥ 10 mg/day in the past 30 days)
  - Shift workers or recent travel across time zones (circadian disruption)
  - Current light-sensitive medications (sulfasalazine, methotrexate)
  - Severe comorbid conditions (e.g. seizures, uncontrolled cardiovascular disease)

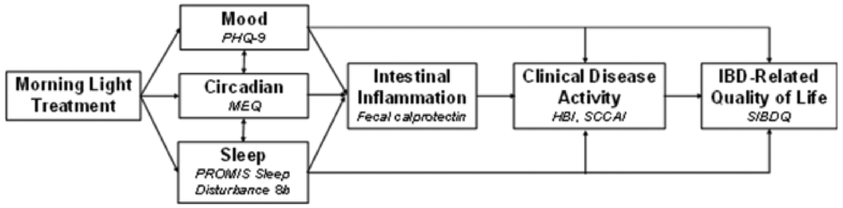

Figure 1. Morning light treatment stabilizes circadian rhythms, which may reduce inflammation and improve IBD symptoms.

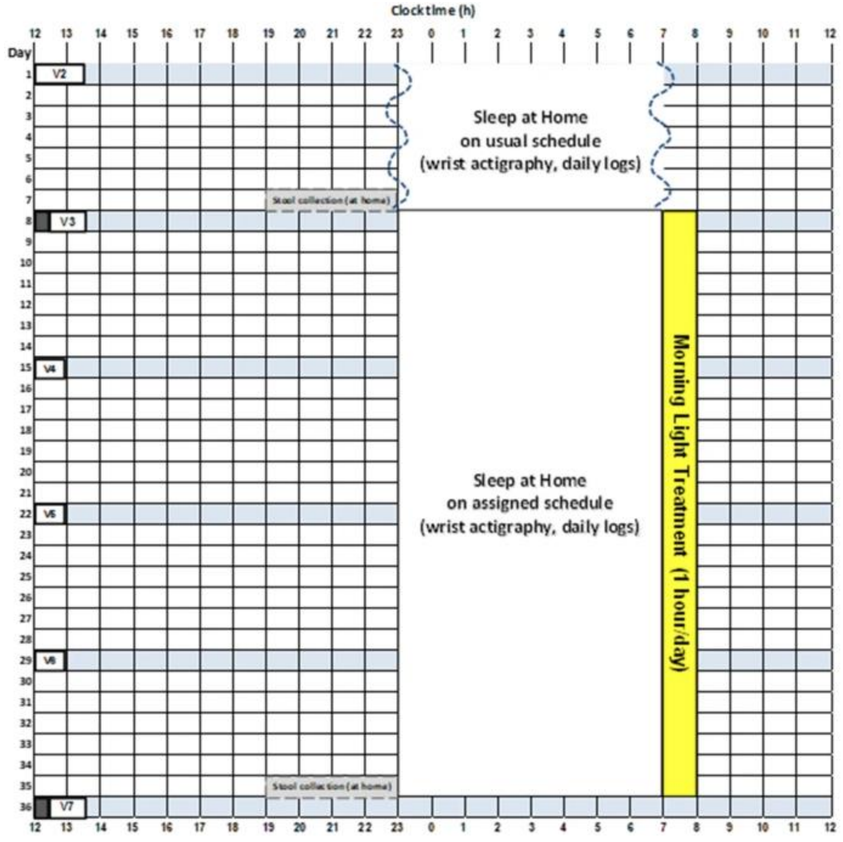

Figure 2. Diagram of the 5-week study protocol for a participant assigned to morning light treatment. Participants wore a Fitbit, tracked sleep, and attended weekly visits for adherence checks and assessments.

METHODS

- Randomized Controlled Trial (RCT), 68 participants.
- Single-center study at the University of Michigan.
- Adults with biopsy-proven IBD and poor quality of life.
- Intervention:
  - Morning light treatment (Re-Timer glasses, 1 hour/day, 4 weeks) with a structured sleep schedule.
  - Control: Treatment as usual (no intervention).
- Sleep and activity are tracked using Fitbit Charge 5 wrist monitors.
- Outcome measures:
  - Primary: IBD-related quality of life (SIBDQ).
  - Secondary: Depression (PHQ-9), Sleep (PROMIS), Clinical Disease Activity (SCCAI/HBI).
  - Exploratory: Fecal calprotectin (gut inflammation biomarker).

DISCUSSION

- IBD patients continue to experience symptoms despite current treatments, with poor sleep and circadian disruption contributing to disease activity.
- Morning light treatment is a non-invasive, accessible intervention that may improve IBD symptoms, sleep, and mood.
- If successful, morning light treatment could be integrated into IBD care as a safe, non-pharmacologic option to complement existing treatments.
- This could particularly benefit patients with persistent symptoms despite biologics and those looking for lifestyle-based interventions.
- Future research directions:
  - Longer trials to assess sustained benefits.
  - Larger clinical trial with the possibility of remote study visits.

REFERENCES

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3. Swanson GR, Kochman N, Amin J, et al. Disrupted Circadian Rest-Activity cycles in inflammatory bowel Disease are Associated with Aggressive Disease phenotype, subclinical inflammation, and Dysbiosis. Front Med. 2021;8:770491.