



# TRANSCUTANEOUS SPINAL DIRECT CURRENT STIMULATION (tsDCS) IMPROVES SLEEP QUALITY AND REDUCES FATIGUE IN PATIENTS WITH HEREDITARY SPASTIC PARAPARESIS (HSP)

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## OBJECTIVE

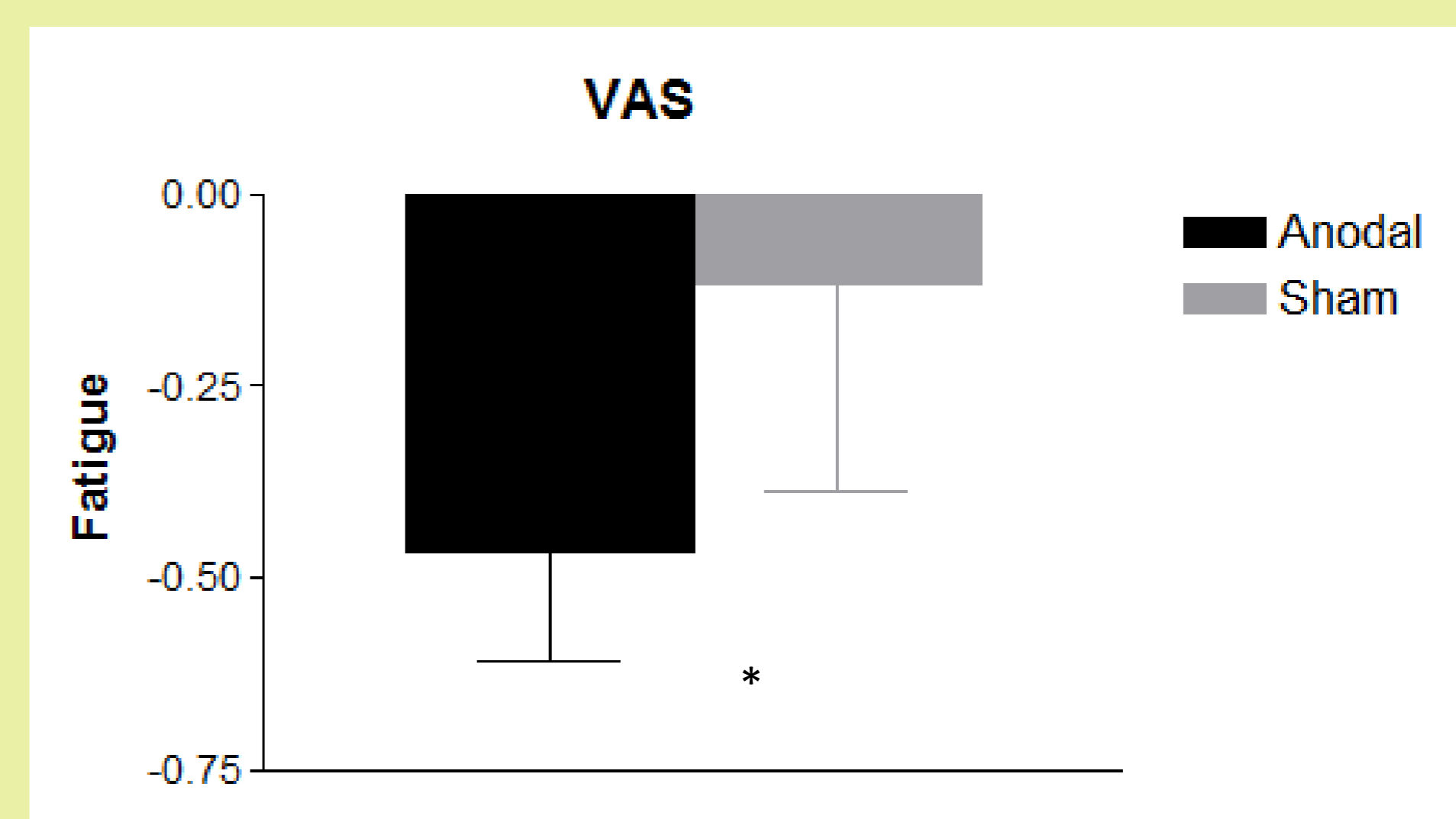
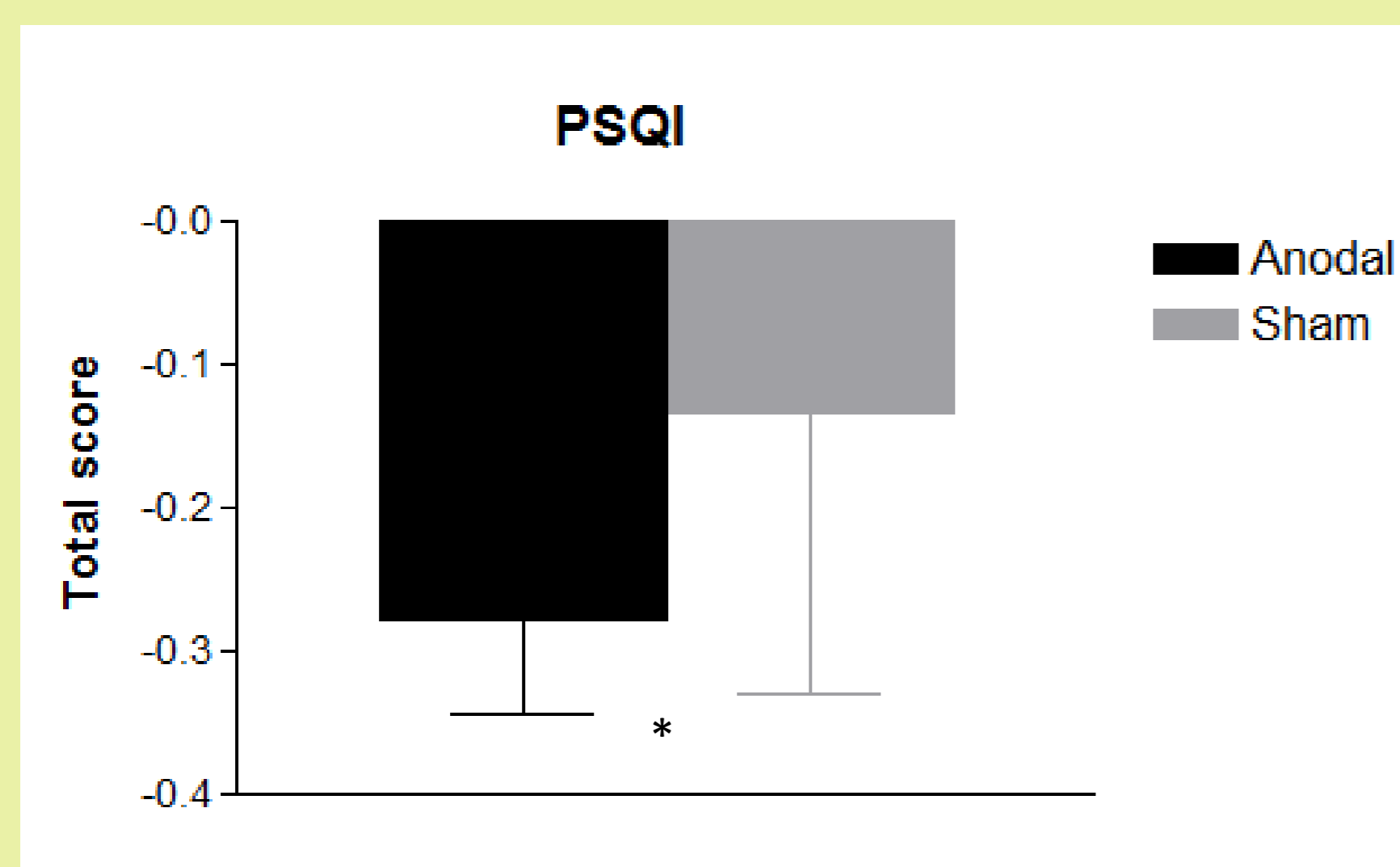
This study was designed to assess sleep quality after five consecutive sessions of anodal transcutaneous spinal direct current stimulation (tsDCS) in patients with hereditary spastic paraparesis (HSP).

## MATERIALS & METHODS

6 patients (aged 30-68) diagnosed as having hereditary spastic paraparesis were recruited. We delivered transcutaneous anodal and sham DC stimulation over the thoracic spinal cord [1], in two separate cycles at intervals of at least 1 month. The intensity of stimulation was set at 2mA and delivered for 20 minutes, once a day for 5 consecutive days. The Pittsburgh Sleep Quality Index (PSQI) [2] was used to assess sleep quality at baseline (T0) and after the tsDCS treatment (T1). We also administered the Visual Analog Scale (VAS) to evaluate mood and fatigue.

## RESULTS

After patients received anodal tsDCS for 5 days PSQI total score improved [(mean SE) T1: -0.27 0.06;  $p=0.031$ ]. Also, anodal tsDCS induced significant changes in feeling of fatigue as evaluated by VAS (T1: -0.46 0.14;  $p=0.015$ ). Conversely, sham-placebo tsDCS failed to induce significant changes.



## DISCUSSION

Despite the small sample size, data from our study showed that anodal tsDCS improves sleep quality and reduces fatigue in patients with HSP, possibly also through supraspinal effects. Because changes in sleep quality had been associated with physical and psychological states, improving sleep quality could improve perceived fatigue, that indirectly could positively impact the quality of life.

## CONCLUSION

We conclude that tsDCS is a simple, and valuable new tool that can be considered in clinical practice as adjuvant treatment for managing sleep disorders in patients with HSP.

## REFERENCES

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