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Effect of Visual Stimulation Using Color Looming Disc with Cortical Blindness : A Case Report

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Introduction

- Cortical blindness (CB)
  - ✓ Vision loss due to lesions of both occipital cortex
  - ✓ Visual pathway dysfunction behind the lateral geniculate nucleus
- Hyposthesis
  - ✓ Blindsight is converted to conscious sight by neural synchronization between a neuronal group involved in blindsight and conscious sight
- Aim of this study
  - ✓ To confirm the effect of the visual stimulation using color looming disc

Case Presentation

- A retrospective study
  - ✓ From January 2023 to February 2023
- Patient
  - ✓ A 42-year-old man suffered from PCA territory infarction after aortic hemi-arch replacement
  - ✓ Diagnosed with cortical blindness as a sequelae of the stroke
- Method
  - ✓ Show black and color looming disc 10 minutes daily for 4 weeks
  - ✓ Evaluated using several evaluation tests
    - ❖ Reading test of random letters & color
    - ❖ Visual evoked potential test
    - ❖ Visual field test

Figure 1. Hospital course of the patient

Pre-evaluation
- Visual evoked potential
- Visual field test
- Reading test

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During hospitalization
- Visual stimulation 10 minutes daily during 4 weeks
- Reading test of randomly provided consonant, number, word, and color

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Post-evaluation
- Visual evoked potential
- Visual field test
- Reading test

Results

- Before stimulation (Correct percentage)
  - ✓ Consonant 21%
  - ✓ Number 50%
  - ✓ Word 21.43%
  - ✓ Color 25%
- After stimulation (Correct percentage)
  - ✓ Consonant 100%
  - ✓ Number 100%
  - ✓ Words 60%
  - ✓ Color 50%
- Percentage of correct answers in all parts has increased

Figure 2. Percentage of correct answers: Consonant, Number, Word, Color

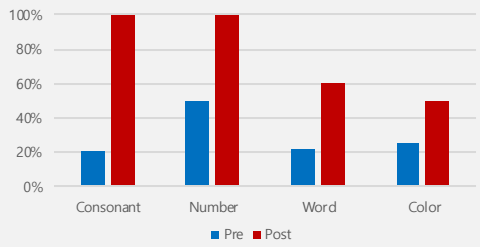

Table 1. Percentage of correct answers: Consonant, Number, Word, Color

	Pre-stimulation	Post-stimulation
Consonant	21%	100%
Number	50%	100%
Word	21.43%	60%
Color	25%	50%

Discussion

- Color looming disc could be a new treatment in patients diagnosed with cortical blindness
- This study confirm the visual stimulation effect on the plasticity of the nerves involved in visions