

INTRODUCTION

The light-curing of glass ionomer cements (GIC) may accelerate their setting time and benefit pediatric and special needs patients; however, it may also risk weakening the GIC. This study was to determine the effect of light-curing on the flexural strength (FS) of two GIC after 24 hours and 7 days.

MATERIALS AND METHODS

Two GIC, Fuji Equia Forte (FE) and 3M Ketac Universal Aplicap (3M), were tested. The three-point bend FS bars of the materials (6 specimens/group) were fabricated by dispensing material into lightly lubricated metal molds. Specimens were either light-cured for 20 seconds or left self-cured, and then stored in water at 37°C until testing. FS was measured with an Instron machine after 24 hours and 7 days. FS between groups were compared using t-tests.



Figure 1. Apparatus used for testing flexural strength of Glass Ionomer rods.

RESULTS

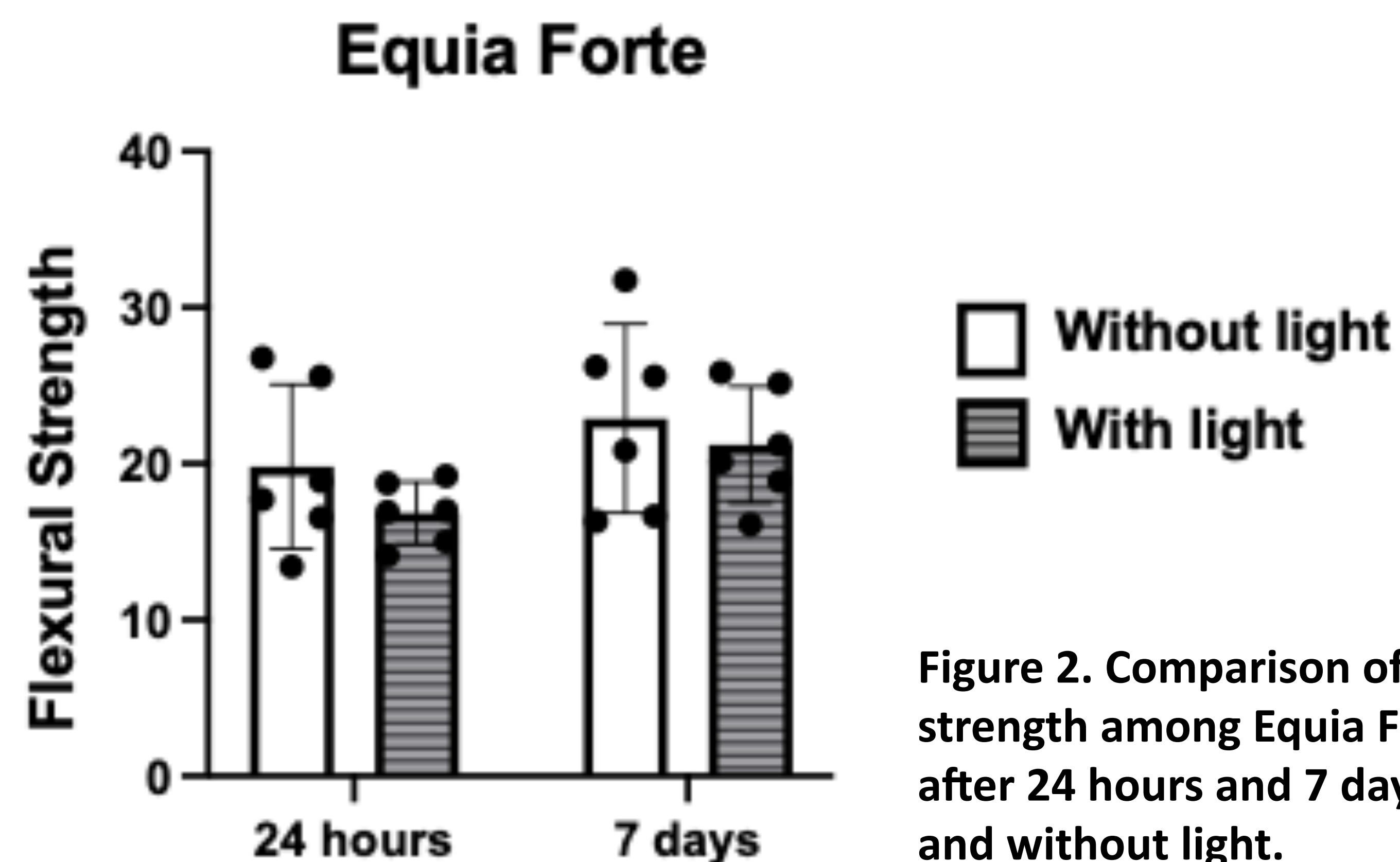


Figure 2. Comparison of flexural strength among Equia Forte GIC after 24 hours and 7 days with and without light.

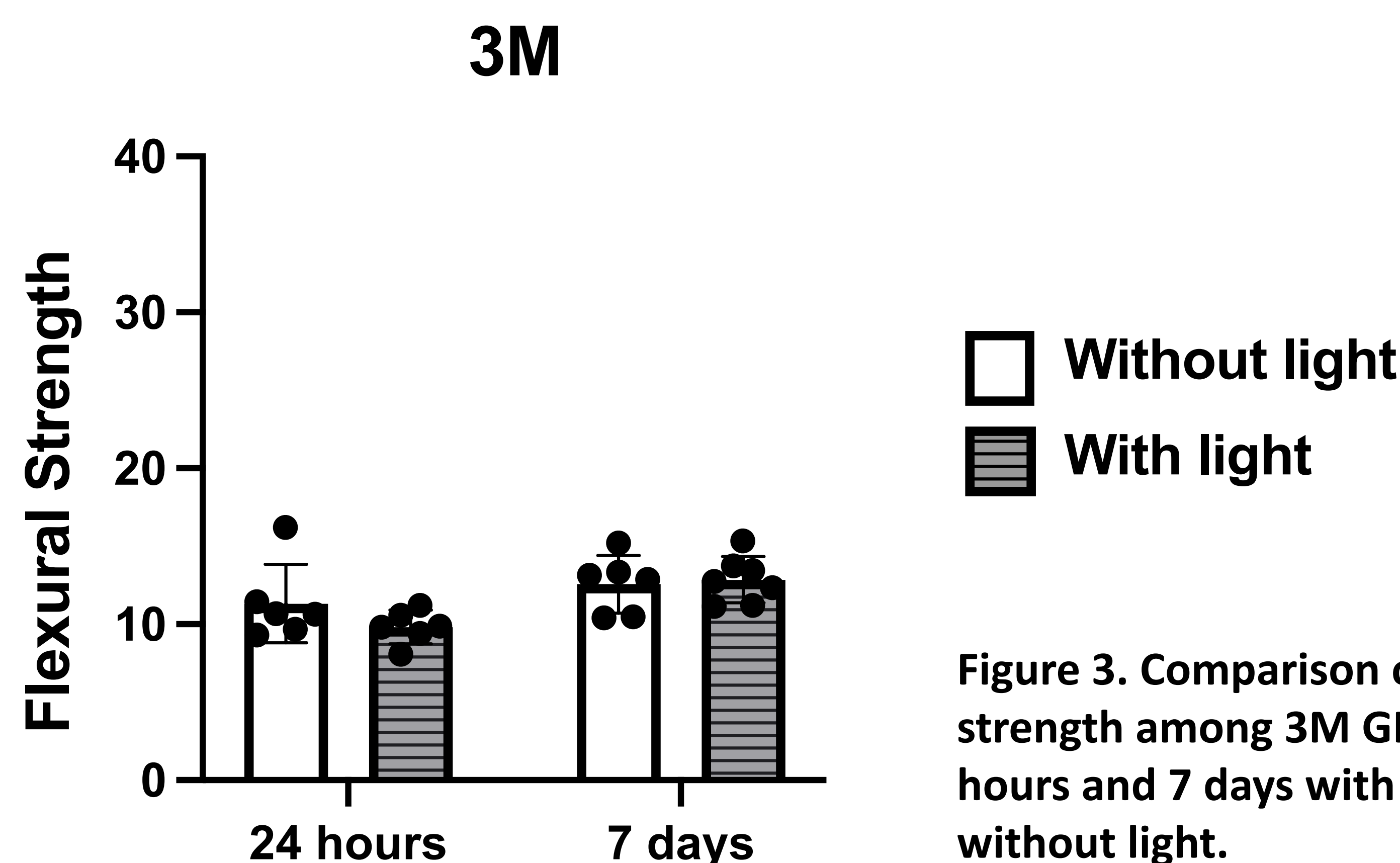


Figure 3. Comparison of flexural strength among 3M GIC after 24 hours and 7 days with and without light.

CONCLUSIONS

Light-curing may be used for command setting of some conventional GIC to accelerate clinical setting without compromising their FS.

RESULTS

After 24 hours:

- FE self-cured was 19.82 ± 5.27 MPa
- FE light-cured was 16.84 ± 2.01 MPa
- 3M self-cured was 11.32 ± 2.51 MPa
- 3M light-cured was 9.83 ± 1.08 MPa

After 7 days:

- FE self-cured was 22.89 ± 6.05 MPa
- FE light-cured was 21.22 ± 3.73 MPa
- 3M self-cured was 12.58 ± 1.85 MPa
- 3M light-cured was 12.76 ± 1.60 MPa

No significant differences in flexural strength between self-curing and light-curing of FE or 3M were seen after 24 hours or 7 days.

REFERENCES

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