Self hypnotic relaxation and structured attention reduced the discomfort of invasive medical procedures

Lang EV, Benotsch EG, Fick LJ, et al. *Adjunctive non-pharmacological analgesia for invasive medical procedures: randomised trial. Lancet* 2000 Apr 29;355:1486-90.

QUESTION: Do self hypnotic relaxation and structured attention reduce discomfort and adverse effects in patients undergoing medical procedures?

Design

Randomised (allocation concealed*), unblinded*, controlled trial.

Setting

A university medical centre in the US.

Patients

241 patients who were 18-92 years of age (median age 56 y, 53% women) and were referred for percutaneous transcatheter diagnostic and therapeutic peripheral vascular and renal interventions. Exclusion criteria included severe chronic obstructive pulmonary disease, psychosis, intolerance of midazolam or fentanyl, and pregnancy. Follow up was complete.

Intervention

Patients were allocated to self hypnotic relaxation plus structured attention (n=82), structured attention alone (n=80), or standard treatment (n=79). A manual was used to standardise treatment in each group. In the structured attention group and the self hypnosis groups, an additional provider sat close to the patient's head and implemented structured attentive behaviour (8 key components). In the self hypnosis group, guidance to self hypnotic relaxation was also given (3 additional components). Patients were able to control within reasonable limits the amount of analgesia/sedation they received. Analgesia/sedation consisted of midazolam, 0.5 mg, plus fentanyl, 25 µg, per request for up to 4 times, with a lockout time of 5 minutes then 15 minutes.

Main outcome measures

Amount of medication requested and given, total procedure duration, self reported pain and anxiety scores (minimum 0, maximum 10), and adverse effects.

Main results

Less analgesia was used in the hypnosis (0.9 units requested and received) and attention (0.8 units requested and received) groups than in the standard group (1.8 units requested, 1.9 units received) ($p < 0.001$). The procedure duration was shorter in the hypnosis group than in the standard group (mean 61 v 78 min, $p = 0.002$). Pain scores increased linearly with procedure time in the standard (slope 0.09 increase in pain score/15 min, $p < 0.001$) and the attention (slope 0.04/15 min, $p = 0.04$) groups but did not change in the hypnosis group. Anxiety scores decreased over time in all 3 groups. The hypnosis group reported a greater reduction in anxiety than the standard group ($p = 0.002$) and less pain than the standard ($p < 0.001$) and attention ($p = 0.03$) groups. 1 patient in the hypnosis group showed haemodynamic instability compared with 10 in the attention group ($p = 0.004$) and 12 in the standard group ($p < 0.001$).

Conclusions

Structured attention and self hypnotic relaxation reduced requests for analgesia in patients having invasive medical procedures. Self hypnotic relaxation also led to shorter procedure duration, less self reported pain and anxiety, and less haemodynamic stability.

*See glossary.

COMMENTARY

The literature of psychologically improving surgical outcomes is a robust area of research.¹ Lang *et al* present intriguing findings that confirm these benefits and extend our knowledge by showing that the addition of hypnosis to other psychological treatments improves the effectiveness of that treatment not only in psychological outcomes (ie, pain intensity and anxiety) and analgesia use but also haemodynamic stability and operating room (OR) time.

Methodologically, the study is sound but the need to change the relaxation hypnotic procedure for the last 53 patients muddies the intervention because the progressive muscle relaxation procedure described is different from the eye roll induction the final 53 patients received. It is also not clear whether the self generated imagery described was generated from all participating hypnosis patients or just the final 53.

Lang *et al*'s findings reiterate earlier findings that psychological and hypnotic interventions for surgical patients are helpful, that attention and intervention diminishes anxiety, and that hypnosis diminishes anxiety further and reduces pain perception and analgesia use.² The new findings that patients in the hypnosis group were more haemodynamically stable and used less OR time may contribute to greater use of similar techniques.

But here is the rub. Despite these findings and their probable generalisability to other invasive procedures, routine use of such procedures is rare.³ Changing OR behaviour has proved to be difficult, and any procedure that adds another body in the OR is not likely to be replicated easily in most practices. The impressive findings of this study, and the journal in which it was published (*Lancet*), will certainly have an effect. But we are still left to evaluate which procedure is (1) best for most patients and the OR and (2) likely to change OR behaviour to recognise the potential of these findings.

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