

INTEGRATED MANAGEMENT OF UPPER-LIMB SPASTICITY WITH BOTULINUM TOXIN TYPE A INJECTIONS AND KINESIO TAPING

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Background

Rehabilitation measures such as stretching and stimulation of the antagonist muscle groups may significantly improve outcomes of botulinum toxin A (BTA) treatment for focal spasticity. In a prospective study (conducted in 2016), we compared upper-limb spasticity management with BTA injections with and without Kinesio taping.

Methods

Patients with post-stroke spasticity and limited extension of elbow, wrist and fingers were randomised to receive **incobotulinumtoxinA (Xeomin) with Kinesio taping (study group) or without (control group)**. In both groups, incobotulinumtoxinA was injected into the elbow, wrist and finger flexors under ultrasound guidance. In the study group, **Kinesio taping was applied for 5 days every week**. Spasticity of the elbow, wrist and fingers was assessed on the modified Ashworth Scale (MAS). The Tardieu Scale (TS) was applied to elbow and wrist. Assessments were made at baseline and once a week for 6 weeks after incobotulinumtoxinA treatment.



Kinesio tape was applied to patients elbow, wrist and fingers extensors as a functional stretching



Fingers and elbow can flex after taping. This method is not an orthotic treatment



Results

Patients (n=32) were 57–65 years of age with 16 recipients in each group. The mean Xeomin doses were 270 U. Spasticity improved 6 weeks after treatment in both groups. MAS scores improved by a mean of -1.44, -1.44 and -1.56 for elbow, wrist and fingers, respectively, in the study group and by -1.0, -0.88 and -0.88, respectively, in the control group ($p < 0.05$). The spasticity angle (TS) decreased by a mean of 19.38° for elbow and 14.38° for wrist in the study group, and by 12.47° and 10.0°, respectively, in the control group ($p < 0.05$). Position of the elbow and wrist at rest improved by 38.75° and 31.25°, respectively, in the study group, and by 22.25° and 12.5° in the control group ($p < 0.05$). **The improvement with Kinesio taping was significantly greater than the improvement with Xeomin alone.**

MAS / study	MAS / control
Elbow -1.44	Elbow -1.0
Wrist -1.44	Wrist -0.88
Finger -1.56	Finger -0.88

SA / study	SA / control
Elbow -19.38°	Elbow -12.47°
Wrist -14.38°	Wrist -10.0°

Study / at rest	Control / at rest
Elbow +38.75°	Elbow +22.25°
Wrist +31.25°	Wrist +12.5°



Study group. Wrist and elbow without tape



Study group. Wrist and elbow with tape

Conclusion

Combining of BTA injection with Kinesio taping improved BTA treatment outcomes, supporting the implementation in medical practice. This integrated management for patients with upper-limb spasticity could be used when other rehabilitation methods are not available.

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