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Empiric tPA: A Salvage Therapy for Severe Frostbite of the Upper Extremity

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PURPOSE: Severe frostbite of the upper extremity is a devastating disease process. Historically, this has been managed expectantly with a digit amputation rate of 50%. Over the last 10 years, strategies have emerged to improve frostbite care including the use of thrombolytic therapy. Unfortunately, these protocols are often delayed by the use of angiography and nuclear medicine bone scans. We sought to determine the utility and digit salvage rate of empiric thrombolytic therapy for severe frostbite of the upper extremity.

MATERIALS AND METHODS: We reviewed patients who presented with frostbite of the upper extremity to the Burn Institute at Akron Children’s Hospital. Six patients were identified who received empiric thrombolytic therapy immediately after rewarming. Regimen includes intravenous tPA bolus and infusion after rewarming followed by 2 weeks of therapeutic low molecular weight heparin (enoxaparin). All patients were evaluated at outpatient for a minimum of 6 weeks to determine the need for amputation. We collected digit involvement, patient demographics, complications from tPA, and the need for digit amputation. We utilized a historic group of expectantly managed frostbite patients as a control group. ANOVA and fisher’s exact test were used for all analysis.

RESULTS: All 6 patients successfully completed the thrombolytic protocol. There were no significant differences between the tPA group and our historic group. A total of 60 digits were involved with severe frostbite (grade III or IV frostbite) in the tPA cohort. Of the 60 digits involved, 46 digits were salvaged at 6 week follow up. The tPA group had a significantly higher digit salvage rate than our expectant control group (50% vs 77% p<0.01). There were no life threatening complications from tPA including intracranial hemorrhage or transfusion. One patient did spontaneously bleed from small abrasions that required intervention, but the patient was able to complete the tPA protocol.

CONCLUSION: Our experience shows that there is a potential for high success rate of digit salvage when empiric tPA is used. In an appropriately selected group with severe frostbite, additional imaging or angiography has the potential to delay patient care. If eligible, we recommend the use of tPA at presentation without the use of pretreatment nuclear medicine imaging or angiography.

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Association between initial Angulation and Outcome in Closed Mallet Finger Treated Conservatively

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BACKGROUND: Mallet finger (MF) has a greater incidence in middle-age men. The current consensus for uncomplicated closed Mallet finger is conservative treatment. The standardized immobilization period is between 6 and 8 weeks. The Crawford classification (CC) divides outcomes in four stages: excellent, good, average and poor. According to Altan, seventy two percent of the patients managed conservatively had an excellent result according to the CC.

OBJECTIVE: Our aim was to establish the frequency of patients achieving an excellent result with Mallet finger treated conservatively in a Tertiary-level Hospital in Mexico City.

MATERIALS AND METHODS: The study was observational, prospective, descriptive and analytical. Patients...
chosen had an uncomplicated closed MF, during January to December of 2017. Two measures of the Distal Interphalangeal Joint (DIPJ) were done, at the initial trauma and 6 weeks after conservative treatment. All were ranked according to the CC. Analysis was made to determine most frequently affected gender, age group, hand and fingers. Furthermore, we compared the association between the initial angulation and the residual angulation of the DIPJ.

RESULTS: We obtained 43 patients, of which 32 were male and 11 were female. More than half (55.8%) had an age ranging from 40 to 45 years. Right hand was affected in 58.1% and middle finger was the most affected (37.2%). Afterward six weeks, the outcomes obtained were excellent in 53.48%, good in 20.93%, average in 23.25% and poor in 2.32%. The sample was later divided in two groups; one that initially had <30° of DIPJ angulation and the other with >30°. In the first group 28% had a DIPJ residual angulation and the second had 72.22%. We find that above 30º, there is a Relative Risk (RR) to have residual angulation of 2.99 (1.73 – 25.8) with a statistically significant p of 0.0059.

DISCUSSION: MF was more frequent in males, in the right hand and in the middle finger, this tally with international data. An adequate functional result was present in >70% of our sample (CC excellent and good). There is an increase in the frequency of the residual angulation in the patients with >30º initially in the DIPJ.

CONCLUSION: MF benefits from the conservative treatment in Mexican population. Further studies with a larger sample are needed to associate the initial DIPJ angulation and the results with conservative management. We suggest to evaluate other treatments for patients with more than 30º of initial angulation.

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