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Intrapleural Tissue Plasminogen Activator Complex Use in Children is An Effective and Reliable Method for Empyema Treatment

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Objectives: Complications related to pneumonia such as parapneumonic effusion (PPE) in children are common in our country. On the other hand, the tendency towards surgical thoracoscopic interventions in PPE treatment tends to decrease. In our research, the outcome of treatment of PPE-diagnosed cases with tissue plasminogen activator (TPA) is discussed.

Methods: We retrospectively analyzed the results of PPE-treated patients treated with TPA in our clinic between november 2016 and July 2018. Age, gender, length of hospital stay, side, radiology, laboratory values, antibiotics, duration of thoracostomy, complications and follow-up were examined. After confirmation of the chest tube position and exclusion of contraindications, TPA was instilled into pleura via chest tube according to standart protocol within 24 hours after insertion of the chest tube. A dose of 4 mg TPA in 40 mL 0.9% saline was instilled once a day for 3 consecutive days.

Results: 19 patients with PPE diagnosis included in the study. 26.3% (n=5) of the patients were female and 73.7% (n=14) were male. At the time of first examination, the average age of the patients was 5.6 years (1.5-17 years).The affected side was left in the 10 patients and the right side was affected in 9 patients. 13 patients diagnosed by USG and 5 of the patients by thorax CT. As control imaging, CT in 8 patients, USG in five cases. The average hospital stay of the patients was 23 (8-60) days. The mean duration of stay of the thorax tube was 16 (4-53) days Only three patients had bacterial proliferation in the cultures taken from the empyema fluid. A second drainage tube was required in four patients while third tube was required in two patients. Massive emphysema in one patient, pneumomediastenum in one patient and persistant air leakage in 2 patients are seen as a complications. One of the patients was treated with in-tube autologous blood patch method and the other two patients did not require additional intervention. The mean follow-up was 10 (1-19) months. One patient was discharged home after treatment and was hospitalized with diffuse pericardial effusion in the early period. In-patient TPA was applied in 3 times in a routine manner. In long-term follow-ups recovery without complications was observed in all of the patients.

Conclusion: TPA is a method that can be used effectively in the treatment of PPE. There is no requirement for the surgical interventions even minimal invasive procesures via TPA method for PPE treatment.

Keywords: Parapneumonic effusion, TPA, tube thoracostomy