Single Center 5-Year Analysis of Survival and QoL of Catheter Directed Therapy of Submassive Pulmonary Embolism

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Purpose

The treatment for intermediate risk pulmonary embolism (PE) by catheter-directed treatment (CDT) requires long term analysis of quality of life, functional status, and survival analysis. The purpose of this study was to analyze outcomes of CDT regarding long term survival and quality of life with comparison to a matched cohort on patients treated with anticoagulation only.

Materials

A retrospective study approved by the institutional review board to investigate patient outcomes of catheter-based therapies of intermediate risk PEs in comparison to patients treated solely with anticoagulation (AC). Data was tracked over five years and used to perform survival analysis with the creation of Kaplan Meier curves using SPSS. Additionally, a small set of patients were recruited to complete PEmb-QoL surveys for quality of life as well as perform 6-minute walk tests (6MWT).

Survival Analysis

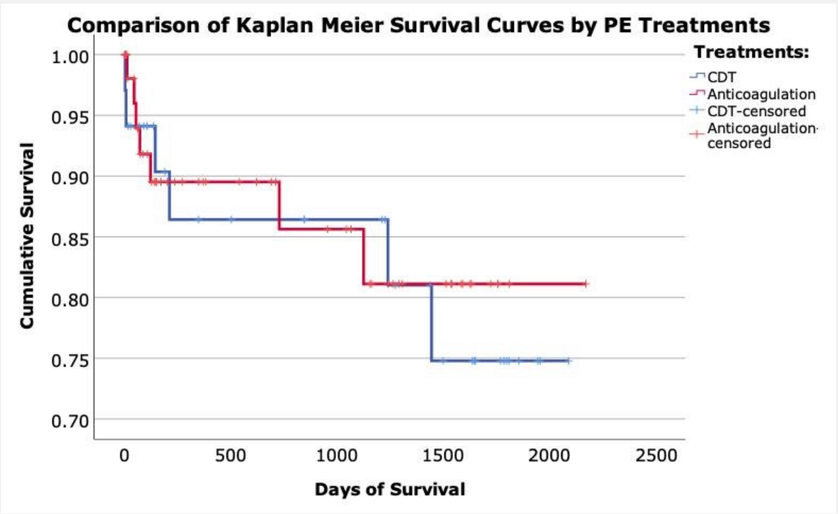

Figure 2. Kaplan Meier Curve demonstrating survival analysis of subjects with submassive pulmonary embolism treated with CDT vs solely anticoagulation. Log rank test was performed with p value > 0.05, suggesting no statistically significant difference.

Quality of Life Analysis

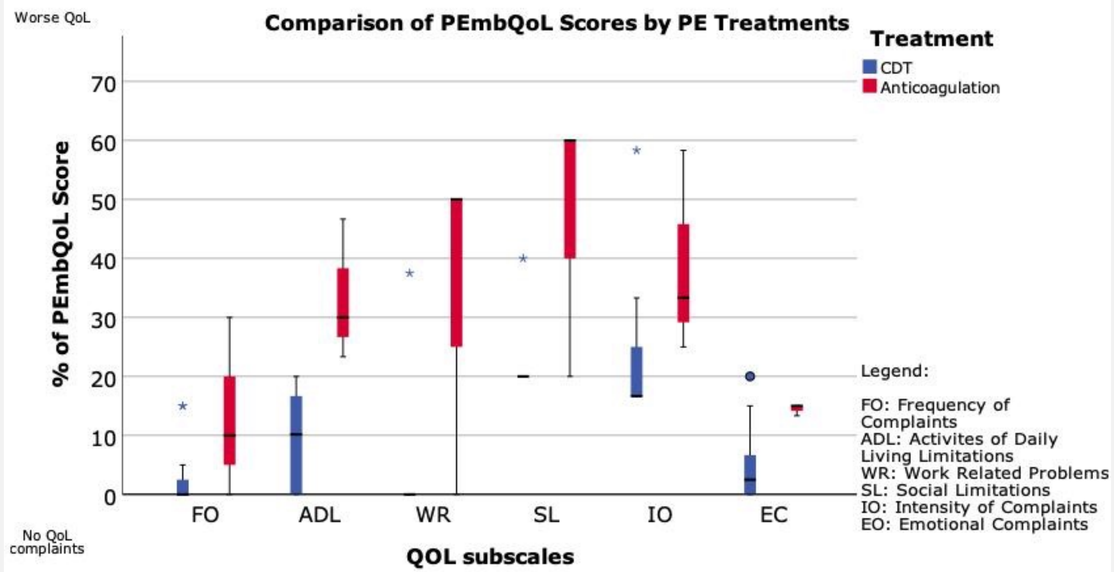

Figure 1. Quality of Life comparison based on PEmbQoL survey analysis of subjects with submassive pulmonary embolism treated with catheter directed therapy (CDT) vs solely anticoagulation taken 5 years after their initial PE. Per PEmbQoL, a higher percentage suggests a worse quality of life. General trend demonstrates a high quality of life after CDT treatment of PE. Statistically significant differences are notable in activities of daily living (ADLs) and emotional complaints (EC), $p < 0.05$.

Results

Over five years, our analysis included 93 submassive patients. There were 36 treated with CDT plus anticoagulation and 57 patients treated with anticoagulation alone. The CDT group survival probability decreased to 75% over five years, while the survival probability of the anticoagulation group decreased to 82%. A long rank test demonstrated no statistically significant difference regarding survival probability ($p=0.78$). Additionally, 15 catheter directed therapy patients and 5 anticoagulation patients completed PEmbQoL surveys as well as 6MWTs. Statistically significant differences were noted in QoL subscales included activities of daily living (ADLs) and emotional complaints (EC), $p < 0.05$. Average distance traveled for 6MWT greater in CDT patients compared to anticoagulation only patient, however this was not statistically significant (CDT mean 394 meters, AC mean 374 meters, $p = 0.3$).

Conclusion

Analysis of quality-of-life survey using PEmbQoL demonstrates statistically significant differences in ADLs and EC. Survival analysis demonstrates similar survival probabilities over five years. No statistically significant differences in 6MWT seen in a small sample size of comparison. Further investigation is prompted given our small sample size. As patients are continued to be followed for 10 years and multicenter studies are developed tracking long term data, more accurate analysis of survival, quality of life and functional status can be performed.

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