OUTCOMES OF PATIENTS WITH TYPE A AORTIC DISSECTION AT UNIVERSITY HOSPITAL, OLOMOUC

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Introduction:

Aortic dissection is a life-threatening condition in which a tear extending along the tunica intima of the Aorta allows blood to flow between the tunica intima and media, causing the two layers to split (displayed in figures 2 and 3). As displayed in figure 1, the Stanford classification divides dissections into two types (A and B) depending on their location. A type A dissection always involves the ascending Aorta, and has the worse prognosis of the two types. This type often presents with chest pain and hemodynamic instability and is usually treated surgically. If left untreated, type A aortic dissection can rapidly lead to many complications such as: cardiac tamponade, stroke and even death. It is estimated that about 20% of patients with acute type A aortic dissection will die before reaching hospital. Mortality for untreated type A aortic dissection is about 25% at 6 hours and 50% within 24 hours [1].

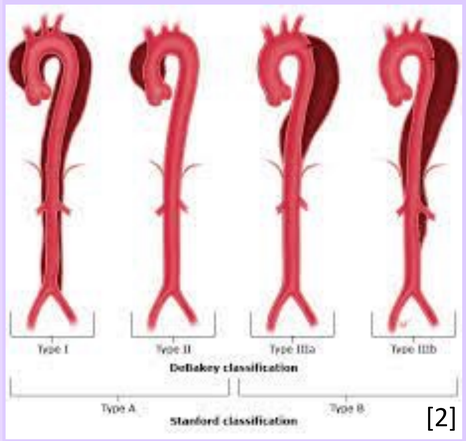

Figure 1: Image displaying Stanford and DeBakey classification of aortic dissection

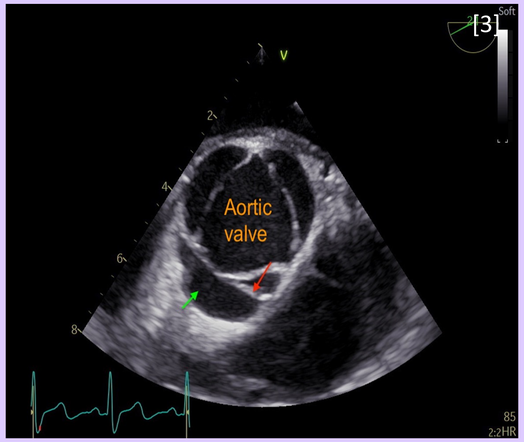

Figure 2: Transesophageal echocardiogram of aortic dissection with visible dissection flap (red arrow) and false lumen (green arrow)

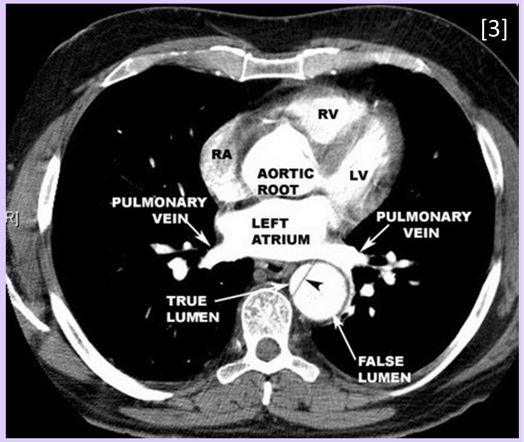

Figure 3: CT image of Stanford A aortic dissection

Objectives:

The aim of this study was to analyse the outcomes of patients diagnosed with type A aortic dissection at University Hospital, Olomouc including complications they developed and the types of procedures they underwent.

Methods:

Data for a total of 246 patients (158 male and 88 female) diagnosed with Stanford A aortic dissection between 2002 and 2022 was collected for this study which included: age, gender, mortality/survival, complications developed, surgeries underwent, cannulations, surgery time, ICU- time, causes of death, in-hospital time, and blood products received by the patients.

Results & Discussion:

Between the years 2002 and 2022, 246 (158 male and 88 female) patients between the average ages of 53 and 74.5 were diagnosed with acute type A aortic dissection at UH Olomouc with a total of 61 in-hospital deaths. 33% of deaths were due to multi-organ failure. Other causes of death included: bleeding, cardiac failure and respiratory failure as shown in figure 4. 126 patients developed complications as a result of the dissection, with cardiac tamponade being the most common. 158 procedures were performed, 43% of which were hemiarch replacements, 37 % were ascending aortic replacements with aortic valve resuspensions, 15% were the Bentall procedure and 5% were total arch replacements (shown in figure 5). 70% of cannulations were femoral artery cannulations. The mean surgery time was 6.2 hours. The mean ICU and in-hospital times were 9.2 hours and 27.7 days respectively.

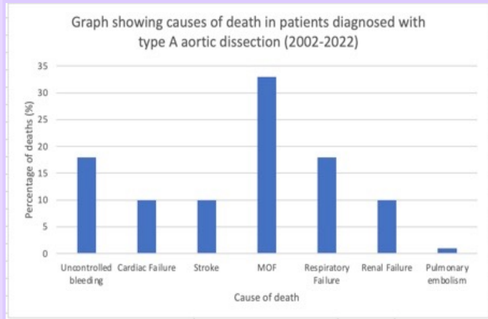

Figure 4: Graph displaying causes of death in patients diagnosed with Stanford A aortic dissection at UH Olomouc

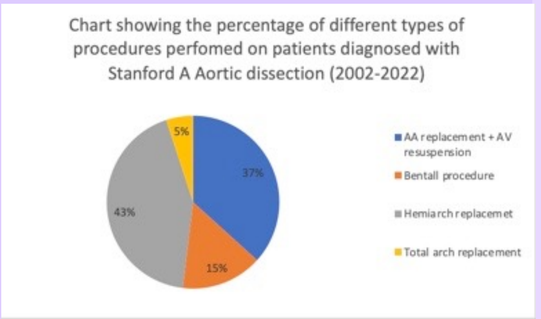

Figure 5: Pie chart showing types of procedures performed on type A aortic dissection patients at UH Olomouc

Conclusion:

About a quarter of the patients died following the type A aortic dissection. The most common cause of death was multi-organ failure and the most common surgery performed was the hemi-arch replacement.

References:

[1] Kenneth J. (2009). Aortic Dissection. *Cardiovascular Pathology (Fifth Edition), 2022*. -(31), p.517. [Online]. Available at: https://www.sciencedirect.com/topics/medicine-and-dentistry/aortic-dissection [Accessed 15 April 2023]
[2] WoltersKluwer. (2023). *Classification of aortic dissection*. [Online]. UpToDate. Available at: https://sso.uptodate.com/contents/image/print?imageKey=SURG%2F100115 [Accessed 15 April 2023].
[3] Paulraj, S. (2020). Aortic dissection and multimodality imaging. *Echocardiography*. 37(9), pp.1485-1487. [Online]. Available at: https://onlinelibrary.wiley.com/doi/full/10.1111/echo.14820 [Accessed 15 April 2023].