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POSTER ABSTRACTS

332.THROMBOSIS AND ANTICOAGULATION: CLINICAL AND EPIDEMIOLOGICAL

Inflammation Sub-Group Analysis in Pediatric HA-VTE Cases: A Report from the Children's Hospital Acquired Thrombosis Registry (CHAT) Registry

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Introduction: Hospital-Acquired venous thromboembolism (HA-VTE) is becoming an increasingly more common complication in children that may result in mortality, short- and long-term morbidity, and increased healthcare costs. To inform HA-VTE risk mitigation strategies, clinical research efforts have been undertaken to determine the precipitating causes of pediatric HA-VTE. Many of these studies have identified inflammation as an important underlying risk factor. We aimed to determine the association between HA-VTE and any clinical inflammatory state among a hospitalized pediatric patient population within the Children's Hospital Acquired Thrombosis (CHAT) Registry, with the hypothesis that inflammation increases the risk of HA-VTE among hospitalized children.

Methods: Institutional review boards at all centers approved the protocol. Children aged 0-21 years admitted to a hospital at one of 8 U.S. pediatric healthcare institutions centers were enrolled in the study. Participants with VTE at admission were excluded. Electronic health records for enrolled subjects were reviewed for the development of a HA-VTE throughout their hospitalization and up to 30 days post discharge to identify cases. Control subjects were hospitalized patients without VTE on admission, during their hospital stay, or within 30 days of discharge. Controls were matched to cases by admission year and admitting institution. Acute inflammation was defined as notation of an inflammatory disease diagnosis (as defined by consensus of the physicians on the study team) as an admitting or discharge diagnosis but not in past medical history (PMH). Inflammatory disease diagnosis in PMH but not in admission/discharge diagnosis was denoted as chronic inflammation. Acute on chronic inflammation was identified in subjects having inflammatory disease diagnoses in both the PMH and admission/discharge diagnosis, while subjects without inflammation had no inflammatory diseases in either PMH or admission/discharge diagnoses. Inflammation was further categorized by consensus of the physicians on the study team as either systemic, regional, or local based on degree of organ system involvement.

Results: From January 1, 2012 to December 31, 2021, 2164 subjects were enrolled. Complete data were available for 1218 HA-VTE cases and 946 controls. Median age for HA-VTE cases was 2.1 years compared to 5.8 years for controls without HA-VTE, with 56% of cases and 51% of controls being males.

Cases were more likely than controls to have had surgery, ICU admission/transfer, intubation with mechanical ventilation, and central venous catheter placement, as well as to have received mechanical, pharmacological, or combined thromboprophy-

laxis while hospitalized. Among controls, 24 (2.5%) carried PMH diagnoses of inflammatory diseases, while 47 (3.9%) of the HA-VTE cases did (p=0.087).
Among cases, 643 (52.8%) had infections either present on admission or develop while hospitalized, compared to 178 (18.8%) of controls (p<0.01). Steroids were administered to 677 (55.6%) of cases compared to 276 (29.2%) of controls (p<0.01). Interestingly, 42.5% of cases and 55.6% of controls were noted to exhibit any type of inflammation (p<0.01), while 39.2% of cases demonstrated systemic inflammation compared to only 26.5% of controls (p<0.01). Of the 1043 children with inflammation, systemic inflammation yielded an odds ratio (OR) of 1.78 (95% confidence interval [CI], 1.37-2.32) for HA-VTE development in univariate analysis.
Four hundred eighty-six (39.9%) HA-VTE cases exhibited acute inflammation, 16 (1.3%) had chronic, 31 (2.6%) had acute-on-chronic, and 685 (56.2%) had no inflammation, compared to 513 (54.2%), 11 (1.2%), 13 (1.4%), and 409 (43.2%) for controls, respectively. Compared to no inflammation, acute-on-chronic inflammation demonstrated increased risk for HA-VTE development with OR 1.42 (95% CI 0.74-2.75).
Conclusion: The present work demonstrates the importance of clinical inflammation subcategories when determining HA-VTE risk. Initial analysis of these data demonstrated that systemic inflammation, especially of the acute-on-chronic variety, conveys the highest risk for HA-VTE in children. Ongoing work will determine how to incorporate these concepts into clinical practice as well as clinical trials of HA-VTE prevention in children.

Disclosures Jaffray: *Genetech:* Consultancy; *Octapharma:* Consultancy; *Bayer:* Consultancy; *Daiichi Sankyo:* Consultancy; *Hema Biologics:* Consultancy; *Behringer-Ingelheim:* Other: Consortium lead to run their observational drug study. **Faustino:** *Diagnostica Stago:* Other: Equipment loan and reagents; *Grifols:* Research Funding. **Young:** *Hema Biologics/LFB:* Consultancy; *Viatris:* Patents & Royalties; *Sanofi Genzyme:* Consultancy, Speakers Bureau; *CSL Behring:* Consultancy, Speakers Bureau; *Genentech/Roche:* Consultancy; *Hema Biologics:* Speakers Bureau; *Takeda:* Consultancy, Research Funding; *Genentech, Inc.:* Research Funding; *Spark:* Consultancy, Speakers Bureau; *Novo Nordisk:* Consultancy. **Goldenberg:** *Novartis:* Other: Data and Safety Monitoring Committee; *University of Colorado-affiliated Academic Research Organization CPC Clinical Research:* Other: Serves on clinical trials oversite committees for pharma studies; *Daiichi Sankyo:* Consultancy; *Chiesi:* Consultancy; *Boehringer-Ingelheim:* Consultancy; *Astra Zeneca:* Consultancy; *Bayer:* Consultancy; *Anthos Therapeutics:* Consultancy. **Branchford:** *Novo Nordisk:* Membership on an entity's Board of Directors or advisory committees; *Sana Biologics:* Other: Contract Laboratory work; *Kendrion:* Other: Industry initiated study member.

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