BREAKOUT
ROOM 22

RESEARCH
- 17 - 23
Safety of Transdermal Hormone Therapy in Menopausal Women at Increased Risk of Venous Thromboembolism
Talia Sobel, MD and Wen Shen, MD

Purpose: It is our objective in this literature review to provide clinicians with evidence on the risk profile of transdermal menopause hormone therapy (MHT) use in postmenopausal women at increased risk of venous thromboembolic events (VTE).

Methods: We performed a search of PubMed, Embase and Scopus using these MeSH terms: “transdermal menopause hormone therapy”, “hormone replacement therapy”, “estrogen replacement therapy”, “hypercoagulability”, “venous thromboembolism”, “thrombophilia”, “transdermal patch”, “immobilization”, “surgery”, “autoimmune”, and “high risk menopause hormone therapy”. We searched all relevant papers from 2000 to 2020, resulting in 136 papers. We included 13 primary articles on transdermal MHT use in postmenopausal women at increased risk of VTE. These include four randomized controlled trials, eight observational trials, and one non-randomized clinical trial.

Results: Two studies included women with prior history of VTE and found transdermal MHT use was associated with decreased fibrinogen levels, and not associated with increased VTE risk or increased coagulation factor levels. 11 studies included women with risk factors for VTE. Of these, three found no increased VTE risk in overweight or obese women using transdermal MHT. Three found a lower risk of VTE in transdermal MHT users compared to oral MHT users with hereditary thrombophilies or prothrombotic genetic polymorphisms. One found decreased levels of prothrombotic factors in women with insulin resistance who used transdermal MHT, while one found no activation of coagulation in women with angiographically proven coronary artery disease who used transdermal MHT. One found no increase in VTE risk amongst transdermal MHT users with a variety of VTE risk factors including obesity, varicose veins, active smokers, recent immobilization, recent surgery, malignancy, cardiovascular or cerebrovascular disorders, myeloproliferative disorders, and inherited thrombophilia. Two studies found no significant difference in coagulation factor levels in oral or transdermal MHT users who were postoperative or had well-controlled non-insulin dependent diabetes mellitus or impaired glucose tolerance.

Conclusion: This literature review provides evidence supporting the safety of transdermal MHT use in postmenopausal women with risk factors for VTE. These studies found no increased risk of VTE with transdermal MHT use in obese/overweight women, women with hereditary thrombophilias, women who recently underwent surgery, or women with prothrombotic genetic polymorphisms.
The Relationship between Gastrointestinal Transit, Severity, and Symptoms in Patients with Systemic Sclerosis

Objective:
Scleroderma (SSc)-associated gastrointestinal (GI) complications are attributed to a variety of factors including diet, microbiota dysbiosis, or GI transit abnormalities. We examined the contribution of abnormal GI transit to SSc GI severity and/or symptoms.

Methods:
Patients with SSc and GI symptoms underwent a whole gut transit (WGT) scintigraphy study to assess transit from the esophagus to the colon. The presence of delayed transit, percent emptying, and/or transit time in each GI region, and the total regions of delayed transit per patient were measured. We then compared the WGT measurements in each region between categories of the Medsger GI severity score and across UCLA GIT 2.0 domains.

Results:
Eighty-percent of patients had >1 abnormal region of the gut on WGT scintigraphy. All patients requiring total parenteral nutrition had delayed small bowel transit, compared to only ~11% of patients in the other Medsger GI severity groups (p=0.003). Severe colonic transit delays were more likely in patients with Medsger GI scores of 3 (pseudo-obstruction and/or malabsorption syndrome) compared to other Medsger GI groups (p=0.019). Seventy-percent of these patients had ≤30% colonic emptying at 72 hours. Modest associations were noted between GERD symptoms and delayed esophageal (r=-0.31, p=0.05) and gastric emptying (r=-0.32, p=0.05).

Conclusion:
These data provide evidence that SSc bowel disease affects transit of GI content and that delay in transit accounts in part for both bowel symptoms and severity. Prospective studies examining the benefit of early therapeutic intervention targeting GI transit abnormalities in patients at high-risk for severe GI complications are needed.

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Program Director’s Name: Erica Johnson, MD
Reduced sensitivity of PLASMIC and French Scores for the diagnosis of Thrombotic Thrombocytopenic Purpura (TTP) in Older Individuals

Background: Thrombotic thrombocytopenic purpura (TTP) is a rare, potentially fatal hematologic disorder characterized by thrombocytopenia, microangiopathic hemolytic anemia, and ischemic organ impairment. The PLASMIC and French TTP scores assess the risk of TTP and guide clinical decisions when confirmatory ADAMTS13 testing is not available. However, age may impact risk stratification of these tools as older individuals present with less severe cytopenias and higher rates of renal impairment.

Objective: To investigate the impact of age on the diagnostic utility of the PLASMIC and French scores.

Methods: We calculated the sensitivity and specificity of PLASMIC ≥5 and French score ≥2 in detecting TTP among patients with a thrombotic microangiopathy (TMA) for different age groups.

Results: Among 81 patients with TTP and 76 with another TMA, diagnostic utility of the PLASMIC score decreased with age, with sensitivities of 91.4%, 78.3%, and 76.9% and specificities of 60.0%, 33.3%, and 50% for ages 18-39, 40-59, and ≥60 years old, respectively. Similarly, for the French score, sensitivities were 72.2%, 61.5%, and 46.2% and specificities were 96.0%, 94.1%, and 73.3% for those age groups. Patients ≥60 years old had significantly higher platelet counts (35.1±8.6 vs 19.9±2.8 x10^9/L, p=0.031) and lower PLASMIC scores (5.15±1.34 vs 5.97±0.18, p=0.031) compared to the youngest age group.

Conclusion: The PLASMIC and French TTP scores have lower sensitivities and specificities at ages ≥60 years old, and thus may be unreliable in identifying TTP in older patients. A high index of suspicion, especially in the elderly, is required to correctly diagnose all patients with TTP.
Catheter Directed Therapy for Pulmonary Embolism - A Real-World Experience

Introduction: Life-threatening pulmonary embolism (PE) is classified as massive or submassive. Catheter-directed therapy (CDT) is a treatment option being increasingly utilized without clear guideline recommendations. We sought to compare outcomes of patients treated for massive or submassive PE with CDT versus those treated with standard of care. Our hypothesis was that CDT for PE was as safe as the standard of care.

Methods: We conducted an IRB approved retrospective chart review within MedStar Health. Inclusion criteria included patients over 18 years, primary diagnosis of PE (ICD 10 coding) between January 2017 and July 2019, admitted to the ICU, and fulfilled criteria for submassive or massive PE excluding septic pulmonary emboli. Our primary outcome measure was mortality and major bleeding events during the index hospitalization. Secondary outcomes included 30-day readmission, 90-day mortality, ICU length of stay (LOS), total hospital LOS and minor bleeding. Bivariate analysis comparing demographics and outcomes with Student T Test, Wilcoxon Rank Sum Test and Fisher's Exact Test were used when appropriate. A p-value of less than 0.05 was significant.

Results: Over the 2.5-year study period, a total of 284 patients met study criteria and, of those, 46 patients had CDT. Patients in the CDT group were more likely to have an elevation in troponin I and RV strain on imaging. In the total CDT group, 4 (8.9%) experienced in-hospital death. All were in the massive PE group. This is compared to 34 (14.3%) in the standard group, 24 of which were in the massive PE group. In the total CDT group, 2 (4.3%) had a major bleeding event compared to 21 (8.8%) in the standard group. Major bleeding events in the submassive CDT group totaled 1 (2.7%) compared to 9 (5.1%) in the submassive standard group. In the total CDT group 18 (40.9%) received an IVC filter compared to 40 (16.8%) in the standard group (p<.01). Readmission at 30 days was 2.8% (n=1) in the submassive CDT group compared to 8.6% (n=26) in the standard submassive group (p = 0.05).

In the CDT group, variability in practice existed and the average total tPA dose used was 16mg.

Conclusion: CDT for submassive and massive PE appears to be as safe as a standard of care. Patients who received CDT had a higher utilization of IVC filters. There was a non-statistical trend to a lower 30-day readmission in the submassive CDT group. Diversity in practice exists between physicians who perform CDT. Our analysis is limited by its retrospective design and specifically selection bias.
AGGRESSIVE PHARMACOTHERAPY FOR INDIVIDUALS WITH CORONARY ARTERY CALCIUM >90TH PERCENTILE?

Background: The 2019 AHA/ACC primary prevention of cardiovascular disease (CVD) guidelines recommend initiating statins among borderline and intermediate risk individuals with a coronary artery calcium (CAC) ≥75th percentile. Little guidance is provided regarding which patients might benefit from even more aggressive pharmacological management. We evaluate whether a CAC percentile >90th can serve this purpose.

Methods: We included 54,175 individuals aged 45-84 years from the CAC Consortium, which included predominantly non-Hispanic white participants (90%), free of coronary heart disease (CHD) at study entry, clinically referred for CAC testing, and followed for a median follow-up of 12 years. We used multivariable Cox Proportional Hazards regression models to evaluate the associations between CAC >90th percentile and all-cause and cause-specific mortality compared to those with CAC=0, CAC <50th and <90th percentile.

Results: Median age of participants was 56 years, 67% were male. Overall, 2,904 (5.4%) deaths occurred, 23% of which were among those with CAC >90th percentile. Individuals with CAC >90th percentile had higher prevalence of traditional risk factors and CAC ≥100 (84%), and the highest mortality rates. Individuals with CAC >90th percentile had a 3-fold, 5.5-fold and 7.5-fold increased risk of all-cause [hazard ratio (HR), 2.98; 95% confidence interval (CI), 2.65-3.35], CVD [HR, 5.78; CI, 4.55-7.35], and CHD mortality [HR, 7.53; CI, 5.37-10.56], respectively, when compared with participants with CAC=0.

Conclusion: CAC >90th percentile identifies asymptomatic individuals at extremely high risk for all-cause, CVD and CHD mortality. These individuals might benefit from a more aggressive pharmacological management than currently proposed in primary prevention guidelines, closer to that of secondary prevention patients.

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(indicating review of abstract)

RESEARCH 21
BREAKOUT ROOM 22

ABSTRACT FORM: Must be at least 10-point font. A sharp typeface will help reproduction. Be sure to single-space and STAY WITHIN THE BORDERS!
EVALUATING THE IMPACT OF ADVANCE CARE PLANNING ON HEALTHCARE UTILIZATION AT THE END OF LIFE
Sama Alreddawi, MD, Erin Giovannetti, PhD, Daniel Willhite, Amrat Ehsan, MD, Nicole Brandt, PharmD, George Hennawi, MD

Background/Objective: Advance care planning (ACP) is an important aspect of patient-centered care that respects autonomy and wishes especially in older adults who are still capable of making decisions. ACP has been shown in some studies to reduce end-of-life (EoL) healthcare utilization (HCU). The Center for Successful Aging (CSA) is an outpatient geriatrics clinic within MedStar Health that provides person-centered, interprofessional care. The objective of this study was to describe ACP among CSA patients and examine HCU at EoL.

Methods/Analysis: This is a retrospective study of patients enrolled in the CSA for at least one year as well as two encounters in the last year of life. ACP was considered complete if the decedent had an advance directives document scanned into the health record, and an assigned proxy decision maker. Decedents were divided into three groups: 1) complete ACP, 2) partial ACP, and 3) no ACP. Chi-square analysis was used to compare the groups.

Results: The study included 63 decedents with a mean age at death of 86 years and the majority (61%) were females. Comorbidities included, but were not limited to, hypertension (93%), dyslipidemia (76%), diabetes (60%), dementia (55%), and heart failure (46%). African American race was associated with a lower completion of ACP (P=.03). The majority of decedents (88%) had at least one EoL discussion at CSA. Almost half of decedents (44%) had hospice care at EoL, 28% were not under hospice care, and 27% had no documentation of whether hospice care was provided. The location of death was at home in 27%, inpatient hospice for 25%, hospital in 17%, long-term care facility for 3%, and unknown in 27% of patients. Overall, 63% had at least one inpatient/ED visit in the last 90 days and 53% had at least one inpatient/ED visit in the last 30 days (average length of acute care: 5.64 (SD 6.61)). The proportion of patients with at least one inpatient stay in the last 30 days of life differed to a nonsignificant degree by ACP documentation.

Conclusion: This study demonstrates that African Americans have a lower completion of ACP which has been seen in previous studies. As clinicians, it is imperative that we continue to identify patient preferences regarding ACP and engage them based on cultural values or assets. Due to a small sample size, we were unable to note significant differences in HCU at EoL. Further larger studies are needed to investigate the impact of EoL discussions on ACP and HCU.
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AMERICAN COLLEGE OF PHYSICIANS – MD CHAPTER

MULHOLLAND MOHLER VIRTUAL RESIDENTS MEETING 2020

Please check one. First author is:
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( ) Poster
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General Classification:
( ) Clinical Vignette
(x) Research Competition
( ) Basic Science
( x ) Evidence based medicine review
( ) Quality/Safety
( ) Clinical Research

Indicate your participation in research process (4 sentences or less): I was lead author on this study. I organized the literature review, analyzed the data and wrote most of the abstract.

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CLINICIANS FOR CARE: A SYSTEMATIC LITERATURE REVIEW THAT INFORMS CLINICIANS ON ENGAGING CAREGIVERS AS PART OF THE CARDIOVASCULAR CARE TEAM

Background/Purpose: Family and other unpaid caregivers play a vital role in the care of patients with chronic diseases, including heart disease, but often face strain that impacts their health and quality of life and that of the patient. Due to the importance of caregivers as part of a patient’s care team, the medical community would benefit from evidence-based recommendations to guide the clinical team in supporting caregivers. We aimed to: 1) synthesize evidence-based guidelines based on successful interventons to aid the medical team in supporting caregivers of heart disease patients and 2) evaluate the impact of these interventions on caregiver and patient outcomes.

Methods: We performed a systematic review of randomized controlled trials (RCTs) of interventions used to support caregivers of patients with heart disease. Articles up to June 21, 2019 were retrieved from the following databases: Medline, Embase, The Cochrane Library, PsycINFO, CINAHL, and Web of Science. Additional studies were identified by searching the references of review articles and selected studies. Titles and abstracts, and full texts were screened independently by two authors with a third resolving conflicts. Data were extracted by a single author using a pre-made, piloted form, and validated by a second author with discrepancies resolved by a third author.

Results: 14,353 articles were screened, which resulted in 22 studies that met inclusion criteria, representing 18 distinct RCTs. There were a total of 1,446 patients and 1,684 caregivers. Most interventions focused on psychoeducation, were delivered over multiple weeks, and had at least one in-person meeting. The interventions addressed caregiver knowledge, burden, satisfaction, anxiety, depression and quality of life. While the study interventions varied in methodology, implementation, and outcome measures, the majority of them led to statistically significant improvements in caregiver and patient outcomes. We synthesized recommendations based on the results of the successful interventions and evidence in the caregiver literature with the acronym, “CARE” (Caregiver centered, Active engagement, Reflection & Reinforcement, Education).

Conclusions and Relevance: Caregivers play a vital role in supporting patients with heart disease, but experience significant burden while performing this role, emphasizing the need for greater support from the clinical team. We developed the CARE model to guide the clinical team in supporting caregivers of heart disease patients.