and usefulness of each questionnaire item, a panel of experts in palliative and end-of-life care will be consulted. o To finalize the questionnaire, it will be pre-tested with a small number of healthcare providers randomly selected from the survey's intended population. Implement the questionnaire to doctors/nurses providing direct end-of-life care by purposeful sampling at an acute community hospital. o Beforehand, survey interviewers will be recruited and trained. Perform quantitate and qualitative analyses o Answers to closed-end questions and quantitative data will be tallied using Microsoft Excel and analyzed using STATA statistical software. o Relationship between the participant's characteristics and their knowledge, attitudes and practices will be assessed using chi-square test. o Answers to open-ended questions in the questionnaire will be collected, analyzed based on their content, and placed in more comprehensive categories by NVivo software. RESULTS/ANTICIPATED RESULTS: It is expected to capture variations and/or consistencies in the amount of knowledge, the type of attitudes and the actual practices among and within physicians and nurses on end-of-life care in a community acute hospital. DISCUSSION/SIGNIFICANCE OF IMPACT: The proposed research is expected to contribute key information from the perspectives of physicians and nurses who deliver end-of-life care in an acute community hospital in Puerto Rico. This contribution is significant because it will serve as the platform to develop culturally-appropriate educational/training materials and, subsequently, implement culturally-responsive guidelines for the care of seriously ill Hispanics, with the expectation of improving their quality of life, and perhaps reducing their medical care costs.

3448

Macrophages, APOL1 Genotype, & Immunometabolism in CVD (MAGIC

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OBJECTIVES/SPECIFIC AIMS: This study aims to understand the potential immunomudualtory effect of APOL1 variants in autoantigen activated myeloid cells by assessing lysosomal integrity in activated cells expressing APOL1. The primary stimuli were: 1. ssRNA hY3 as a proxy for the Ro immune complex; 2. in an bulk RNA seq model, interferon-response gene, Siglec 1, as a read out of interferon activity. The primary outcomes were: 1. Myeloid cell APOL1 expression both in primary macrophage cultures and ex-vivo patient derived macrophages; 2. Lysosome integrity as measured by fluorescence intensity of lysotracker dye on light microscopy. METHODS/STUDY POPULATION: All recruited subjects provided written informed consent as per the NEW YORK UNIVERSITY Division of Rheumatology-wide Specimen and Matched Phenotype Linked Examination (SAMPLE) protocol. Subjects were African American; SLE subjects met 4 American College of Rheumatology criteria for SLE. Healthy donor monocytes representing each genotype in duplicate (reference allele: G0/G0; heterozygote variant: RV/G0; and homozygote variant RV/RV) were cultured with GM-CSF to yield macrophages which were incubated in serum free media or with hY3 ssRNA (TLR 7/8 agonist) to yield inflammatory M1 macrophages. Fold increase of APOL1 in untreated vs hY3 treated macrophages was measured using qPCR. Live cells were then cultured on glass chamber slides with DNA dye, DAPI, and Lysotracker red, a fluorescent dye that stains acidic lysosomes. As a proof of concept, interferon response gene, Signlec1, and APOL1 transcriptional activity in peripheral blood monocytes (PBMCs) were measured and correlated in 17 SLE patients by RNA seq. RESULTS/ANTICIPATED RESULTS: Regardless of genotype, hY3 increased APOL1 expression by 29 (+/−18.4) fold ($P = 0.007$ vs no treatment). Genotyping of the qPCR product showed concordance with the chromosomal DNA with the RV heterozygotes expressing both alleles. To examine lysosomal membrane integrity, live hY3-treated macrophages were stained with lysosotracker dye and fluorescence intensity was measured. Compared to reference allele carrying macrophages, each additional variant allele corresponded with a lesser degree of lysosome compartment staining. In SLE PBMCs, we found that APOL1 was highly expressed, and significantly correlated with Siglec1 ($F=10.5$; $P = 0.005$) supporting an association between circulating interferons and APOL1 accumulation in monocytes. DISCUSSION/SIGNIFICANCE OF IMPACT: Given that the "cytokine milieu" in SLE elicits APOL1 expression, induces inflammatory cell metabolic rewiring, and stimulates autophagy thereby exposing defects in autophagic flux, this gene-environment interaction may underpin the relationship between chronic inflammation and heightened APOL1 polymorphism-attributed cardiovascular risk. These data support further inquiry into the intersection between chronic autoimmunity and APOL1's functional role in the vascular microenvironment. The in vitro studies herein extend our prior work by demonstrating a mechanistic link between SLE-associated inflammation, APOL1 risk variant status and CVD via a lysosomal defect which converges on common autophagic and metabolic pathways in mononuclear cells.

3407

Maternal Daytime Dysfunction Due to Sleepiness and its Relation to Child Psychopathology

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OBJECTIVES/SPECIFIC AIMS: Anxiety is prevalent in early childhood and, when left untreated, increases children's risk for chronic anxiety and depression later in life. Maternal risk factors (e.g. income and marital status) have also been shown to heighten their children's risk for the development of the aforementioned psychopathology. Sleep plays a critical role in behavior regulation, is affected in depression, and is influenced by a wide range of demographic and psychological variables. The purpose of this study was to examine the relationship between maternal sleep and the presence in their children of reported symptoms relating to anxiety, depression, and behavior regulation. METHODS/STUDY POPULATION: Children (n=59, aged: 4-9 years ($M = 6.069$, $SD = 1.006$, 59.3% female) and their mothers were sampled from clinic and community settings and were administered questionnaires. Maternal sleep quality was assessed by the Pittsburgh Sleep Quality Index, which captures both numeric and self-reported categories relating to an individual's perception of their sleep. Child anxiety and depression were assessed via parent-reported Child Behavioral Checklist (CBCL). Maternal depression symptoms were assessed with the Beck Depression Inventory (BDI). Associations between these measures were analyzed by ANOVA with post-hoc analysis and linear regression as appropriate. RESULTS/ANTICIPATED RESULTS: A statistically significant difference was observed in the mean child CBCL scores when children were sub-set into maternal categories of self-reported days of dysfunction due to sleepiness over the past month. Mean child CBCL T-score domains with statistically significant differences

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were: attention problems (F = 4.935, p = 0.004), depression problems (F = 3.073, p = 0.035), ADHD (F = 4.422, p = 0.007), oppositional defiant (F = 2.865, p = 0.045), and total t-score (F = 3.073, p = 0.035). Maternal mean DBI scores were also statistically significantly different when grouped by days of maternal dysfunction due to sleepiness (F = 9.791, p < 0.001). There was no relation between these CBCL categories and maternal DBI scores. DISCUSSION/SIGNIFICANCE OF IMPACT: Maternal self-reported days of dysfunction due to sleepiness may potentially increase risk for their children to develop further psychopathology independent of mothers' depression symptomatology. These findings highlight the need for broader assessment clinically of children's environments with additional focus on maternal function given the potential impact on their children's functional outcomes.

3275

Nonclinical factors associated with contralateral prophylactic mastectomy among breast cancer patients in the Surveillance, Epidemiology, and End Results (SEER) database

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OBJECTIVES/SPECIFIC AIMS: The study aims to measure the associations between nonclinical factors and the likelihood of electing contralateral prophylactic mastectomy [(CPM) i.e. bilateral mastectomy for unilateral cancer] among women with breast cancer, with a focus on the roles of race, relationship status, and geographic location. The outcome of interest is a dichotomized surgery type variable (i.e. CPM versus other surgery). METHODS/STUDY POPULATION:. The Surveillance, Epidemiology, and End Results registry was queried to identify female breast cancer patients diagnosed at stage IA through IIIC from 2010 through 2015 and received surgery as part of their primary treatment (n=174,776). A multilevel logistic regression was used to model likelihood of CPM versus less aggressive surgical treatment (i.e. breast conserving surgery or unilateral mastectomy). Fixed-effects included age at diagnosis, race, relationship status, insurance type, county-level median income, county-level population density, stage at diagnosis (low-stage, IA-IIB; advanced-stage, IIIA-IIIC), an interaction term between race and stage at diagnosis, and breast tumor subtype. County of residence was used as a random-effect. RESULTS/ANTICIPATED RESULTS: Among women with low-stage cancer, compared to the reference class of white women, black women had 0.57 times lower odds of CPM (p<0.0001), Hispanic women had 0.69 times lower odds of CPM (p<0.0001), and Asian women had 0.60 times lower odds of CPM (p<0.0001). Among women with advanced-stage cancer, compared to white women, black women had 0.42 times lower odds of CPM (p<0.0001), Hispanic women had 0.51 times lower odds of CPM (p<0.0001), and Asian women had 0.45 times lower odds of CPM (p<0.0001). Compared to the reference class of single, never-married women, divorced/separated women had 1.25 times greater odds of CPM (p<0.0001), widowed women had 1.11 times greater odds of CPM (p=0.009), and married/partnered women had 1.18 times greater odds of CPM (p<0.0001). County-level variation from the random-effect (MOR, 1.49; p<0.001) had a greater influence on CPM election than fixed-effects for insurance class, breast tumor subtype, county median income, county population density, and year of surgery. DISCUSSION/SIGNIFICANCE OF IMPACT: The nonclinical factors associated with variation in breast cancer surgical decision-making suggest patients and providers both may benefit from further education about surgical treatment options. Providers may also benefit from educational materials that highlight treatment selection disparities within specific contexts, such as surgery for primary unilateral breast cancer. To more narrowly tailor future policy interventions, an additional mixed-methods exploration is recommended to clarify how relationship status and location serve as mechanisms for breast cancer decision-making.

3451

Pain, Quality of Life, and Emotional Measures as Predictors for Outcomes following Surgery for Nerve Injuries

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OBJECTIVES/SPECIFIC AIMS: Examine data from PNID patients to evaluation the strength of associations between pre-operative and post-operative levels of pain, quality of life, and emotional reactions to pain to determine if one or more can serve as better predictors of surgical success than pain. METHODS/STUDY POPULATION: In our preliminary study, we gathered data from a pre-existing database of 464 PNID patients that contains self-reported visual analog scale scores (VAS) of pain intensity, QoL, and depression. We measured these variables at three time points: pre-operatively, post-operatively, and at the final visit. We used the Wilcoxon signed rank test to determine if each of these three variables differed significantly between the pre-operative visit and the post-operative visit period and from the pre-operative visit to the final visit. RESULTS/ANTICIPATED RESULTS: Median time from the pre-operative visit to surgery was 9 weeks; median time from surgery to the post-operative visit was 4 weeks; and median time from the post-operative visit to the final visit was 23.5 weeks. There was a clinically meaningful difference in pain scores between the pre-operative and post-operative visits (median difference 1.15; 95% CI 0.75-1.55). In the period between the post-operative visit and the final visit there was also a decrease in pain (0.90; 95% CI 0.55-1.30). The magnitude of change in median difference of 1.85 (95% CI 1.50-2.20) between the pre-operative visit and the final visit was larger than the change in median difference of 0.90 (95% CI 0.55-1.30) between the post-operative visit and the final visit. The pre-operative visit median QoL score was higher than the median score at the post-operative visit (1.65; 95% CI 1.25-2.10). The smallest median difference in QoL of occurred between the post-operative and the final visit (1.10; 95% CI 0.60-1.45). As seen with the pain scores, the magnitude of change in median difference of 2.50 (95% CI 2.20-2.85) for QoL was greatest between the pre-operative and the final visit. Depression scores showed the least amount of change amongst all the variables, between the pre-operative and the post-operative visit (1.00; 95% CI (0.70-1.40), and similarly between the post-operative visit and the final visit (0.15; 95% CI (0-.40). The median differences between the pre-operative and final visit were greatest in QoL (2.50; 95% CI 2.20-2.85), followed by pain scores (1.85; 95% CI 1.50-2.20), and finally, depression (1.05; 95% CI 0.70-1.40). DISCUSSION/SIGNIFICANCE OF IMPACT: Our results show that all three variables measured improve with surgery and continue to improve over the post-operative course to the final visit. This suggest that the relationships between pain, QoL, and depression should be further investigated. We are hopeful that elucidating how these variables interact in the

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