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Influences of Patient Medication Use on Osteoarthritic Chondrocyte Metabolism

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INTRODUCTION: Osteoarthritis (OA) is the most prevalent cause of musculoskeletal disability in the United States. Vast patient-to-patient variability exists in the clinical development and progression of knee OA, and knee OA is often managed using medication for many years prior to surgical intervention. Previous studies have indicated that OA chondrocytes maintain key phenotypic characteristics during initial in vitro culture. However, it is not clear if medications commonly prescribed to treat comorbidities (thyroid medications, thiazide diuretics, proton-pump inhibitors, angiotensin-converting enzyme [ACE] inhibitors, cyclooxygenase [COX]-2 inhibitors, non-steroidal anti-inflammatory drugs [NSAIDs], corticosteroids, opioid analgesics, and statins) impact chondrocyte metabolism during initial culture. Therefore, this study was designed to identify significant differences in production of distinct biomarkers based on patient medication use prior to surgery.

METHODS: With IRB approval and informed patient consent, cartilage tissue normally discarded during surgery was collected from patients undergoing total knee arthroplasty. Chondrocytes from these tissues were grown to confluence, media were changed, and the cells were cultured for three days. After three days, a media sample was collected. Media were analyzed for cytokines, degradative enzymes, inflammatory indicators, and matrix molecules. A Mann-Whitney U Test was utilized to identify significant differences between treated and untreated patient groups for each medication type, with significance set at $p<0.05$.

RESULTS: Assays and data analysis for this study are ongoing and will be presented on the poster.

CONCLUSION: Assays and data analysis for this study are ongoing and will be presented on the poster.