NEXT-GENERATION SEQUENCING (NGS) IS INDICATED IN PATIENTS WITH PERIPROSTHETIC JOINT INFECTIONS (PJI)

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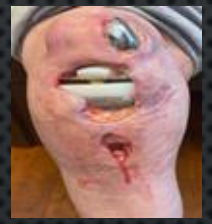
INTRODUCTION: CULTURE AND SENSITIVITY HAVE BEEN THE "**GOLD STANDARD**" FOR IDENTIFICATION OF ORGANISMS IN PJI. HOWEVER, CURRENT LITERATURE SHOWS CULTURE RETRIEVAL RATES VARY FROM **15-60.7%** FOR EVEN A SINGLE ORGANISM. ***MORE RELIABLE TECHNIQUES ARE NEEDED TO ACCURATELY DIAGNOSE AND TREAT PJI.*** NGS IS NOW COMMERCIALLY AND HAS DISTINCT ADVANTAGES OVER CULTURE AND SENSITIVITY. NGS CAN IDENTIFY THROUGH UTILIZATION OF THE NIH DATA BASE, OVER 56,000 BACTERIAL, VIRAL AND FUNGAL SPECIES AS WELL AS RESISTANCE GENES FOR THESE. IT IS PCR DRIVEN AND RESULTS CAN BE GOTTEN IN 2-3 DAYS. QUESTIONS TO BE ASKED IN THIS STUDY: 1)**WHAT IS THE ACCURACY OF NGS IN IDENTIFYING ORGANISMS IN PATIENTS WHO ARE TAKING ANTIBIOTICS AT TIME SAMPLES WERE COLLECTED? 2) DOES NGS DEMONSTRATE SUPERIOR ACCURACY IN IDENTIFYING POLYMICROBIAL INFECTIONS COMPARED TO TRADITIONAL CULTURE TECHNIQUES? 3) CAN NGS RELIABLY IDENTIFY THE PRESENCE OF ANTIBIOTIC RESISTANCE GENES IN PERIPROSTHETIC JOINT INFECTIONS PJI? THE WORKFLOW IS DEPICTED BELOW**

METHODS: 168 PATIENTS WITH KNOWN PJI WERE SENT CULTURES & SENSITIVITY AND NGS



RESULTS:***SITES: 113 KNEES, 40 HIPS, 3 LOWER LEGS,5 SHOULDERS, 7 UPPER EXTREMITIES***

PATIENTS HAD AN AVERAGE 5-7 OPERATIONS PRIOR TO REFERRAL WITH A RANGE OF 1-24

FINDINGS :		NGS N=168	CULTURE AND SENSITIVITY N=168
MEAN AGE	66 Y/O		
FEMALE TO MALE RATIO	1.3-1		
POSITIVE PATHOGEN IDENTIFIED WITH ABX		100%	40.2%
POLYMICROBIAL ID'D		61.3%	12.5%
MEAN ORGANISMS ID'D		2.83	0.6%
RESISTANT GENES ID'D		44.1%	N/A

CONCLUSION:NGS IS MORE ACCURATE THAN CS IN PATIENTS WITH PJI, AND THE USE OF ANTIBIOTICS **DID NOT ALTER ITS RECOVERY** RATES. HOWEVER, IN CS, IT DECREASED RECOVERY BY **NEARLY 60%.** WE FEEL STRONGLY THAT NGS SHOULD BE USED ON PATIENTS WITH KNOWN PJI. IT WILL AID IN ANTIBIOTIC USAGE AND STEWARDSHIP .