Results: In this work, a sweat sensor platform for the duplex detection of IL-6 and IL-10 has been demonstrated. The conjugation of the antibodies to the sensor was achieved using a streptavidin-biotin interaction. The impedance response was used to characterize the sensor performance metrics. Calibration dose response curves were developed with decreasing impedance response for increasing cytokine concentrations. A limit of detection of 2 pg/mL was obtained with comparable range to the blood cytokines. Detection of sweat cytokines can help in monitoring of inflammation in real-time. In this work, we demonstrate a duplex cytokine sweat based sensor for real-time monitoring. The developed sensor can detect interleukin-6 (IL-6) and interleukin-10 (IL-10) in real-time that can aid in establishing the diagnosis. PAD is common in Crohn's disease (CD) but can also be seen in patients with ulcerative colitis (UC) in the form of fissures, abscesses and fistulae. Absence of perianal symptoms does not exclude PAD. Performing a routine perianal examination in a busy outpatient setting is not ideal and the endoscopy suite may be more appropriate. We hypothesise that perianal examinations are being omitted during IBD assessment colonoscopy.

Methods: Unisoft GI Reporting Tool was used to identify the last 70 consecutive CD and UC assessment colonoscopies performed over a 12 month period (August 2018 and July 2019) at a London-based district general hospital. Data was collected on demographics, known PAD, previous imaging and performance of perianal examination at colonoscopy.

Results: 140 patients undergoing colonoscopy for IBD assessment were included in this study (70 CD, 70 UC). Median age 42 (IQR 32 – 55), Female 66 (47.1%), 15 (10.7%) had known peripheral disease. Pelvic MRI had previously been performed in 20(14.3%). Perianal examination was performed in only 3 (2%) patients at the time of their last clinic consultation. Although digital rectal examination (DRE) was performed in 132 (93.6%) of patients at the time of colonoscopy, only 9 (6.4%) had a perianal examination documented.

Conclusion: About 10% of patients in our cohort undergoing IBD assessment colonoscopy were known to have PAD but perianal examination was performed in only 2% of patients during clinic consultation and 6% during colonoscopy. Perianal examination at time of endoscopic assessment is an ideal setting to perform an intimate examination as you have an exposed, sedated and chaperoned patient. The omission of perianal examination on colonoscopy is a missed opportunity and improvement in this key element of disease assessment is required.

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