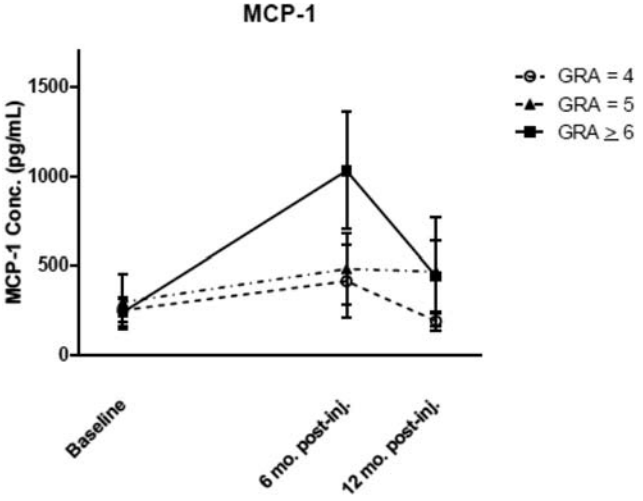
chemoattractant protein-1 (MCP-1/CCL2) expression corresponds with patient-reported Global Response Assessment (GRA) scores.

METHODS: After IRB approval urine samples were collected from subjects with non-neurogenic UAB without outlet obstruction treated with 250 million AMDCs via 30 intradetrusor injections. Subjects were seen, assessed for adverse events and efficacy, and urine for biomarker testing was collected at 1, 3, 6 & 12-month post-injection. Levels of cytokines in the urine were measured using Luminex Multiplex assay (Millipore). Patients also reported a GRA on a scale of 1 to 7, where 1 is markedly worse (failure of therapy) and 7 is markedly improved (successful therapy).

RESULTS: No serious procedure- or treatment-related AEs occurred. All patients reported similar levels of urinary MCP-1 at baseline. The patients that reported a GRA of 6-7 (moderately improved to markedly improved) 6 months post-injection had increased urinary expression of MCP-1; patients that reported a GRA of 4 (unchanged) had no appreciable increase in MCP-1. No patients reported a GRA of 1-3 (markedly worse to slightly worse). At 12 months post-injection, MCP-1 levels of GRA 6-7 remained higher than GRA of 4.

CONCLUSIONS: MCP-1 is one of the key chemokines known to play an important role in wound healing and collagen synthesis. Elevated urinary expression of MCP-1 was observed in patients reporting moderately improved to markedly improved symptoms as a result of ADMC injections to treat UAB whereas patients that reported no improvement were observed not to have an increased in urinary MCP-1. Urinary MCP-1 might be of interest to future studies as a possible indicator of biological response in patients responding to ADMC therapy.



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PD21-08

INTERPRETATION OF UROFLOWMETROGRAM: APPLICATION WITH ARTIFICIAL INTELLIGENCE

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INTRODUCTION AND OBJECTIVE: Uroflowmetry (UFM) is a non-invasive, economical, and useful test that can predict indirectly the function of bladder and urethra in patients with lower urinary tract symptoms. We develop a program that automatically interprets the results of UFM using machine learning algorithm, a field of artificial intelligence (AI).

METHODS: Since Sep. 2018, results of UFM more than 150 ml of voided volume were included prospectively. By accessing an internet-based reading program, three urologists independently labeled UFM results as normal, borderline, or abnormal. The majority decision was made if the readings of the three experts were inconsistent. The different readings of all three urologists were excluded from the final analysis. Among all the data, 80% are randomly selected as training set to train the machine learning algorithm to get a model predicting the diagnostics result, and the rest as validation set to evaluate the accuracy/performance of the model. Using parameters such as age, gender, voided volume, maximal flow rate (Qmax), time to Qmax, average flow rate (Qavg), flow time, delay time, and post void residual, the AI algorithms, learned through supervised machine learning, was developed to be interpreted in the three groups: normal, borderline, or abnormal. The accuracy of the developed algorithm model was validated with sensitivity and specificity using the validation set.

RESULTS: After excluding 898 cases with voided volume less than 150 ml, 1574 cases (male 1031, female 543) were finally included. The male results were labeled as normal in 521 cases (50.5%) and abnormal in 232 cases (22.4%), with unanimous read rates in 51.4%. For female, 420 (77.3%) was normal and 60 (11.0%) was abnormal with 70.5% unanimous rates. Model performance improved gradually as the number of available factors increased. The prediction algorithm showed the best accuracy when using the combination of four parameters: voided volume, Qmax, time to Qmax and Qavg. The prediction accuracy was 94.2% in males and 94.5% in females.

CONCLUSIONS: When machine learning was used to predict the reading of the UFM results, the prediction accuracy was the highest when using four parameters such as voided volume, Qmax, time to max, and Qavg, and the prediction accuracy was 94.3%.

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PD21-09

TIME OF DAY EFFECT ON VOIDING PARAMETERS AS MEASURED BY STREAM DX: A HOME UROFLOMETRY DEVICE

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INTRODUCTION AND OBJECTIVE: Stream Dx is a novel, home use uroflowmetry device that can be used to collect multiple uroflow measurements over several days in a patient's home. Our objective was to assess whether voiding parameters changed depending on the hour of the day and if this data would be helpful in optimizing symptom relief with personalized recommendations.

METHODS: Basic demographic data, voiding profiles, and International Prostate Symptom Scores were collected from April 2019 to September 2019 and analyzed retrospectively. In total, 132 patients met the inclusion criteria of using the device on at least two separate days and using the device at least three times. To estimate the association between voiding parameters (maximum volume, maximum flow, average flow, and number of voids) and the time of the day (7am-3pm, 3pm-11pm, and 11pm-7am), we used mixed effects models that adjusted for age. The coefficients and 95% Confidence Intervals were reported for the models.

RESULTS: A total of 132 patients were enrolled in the study. The mean age was 66 years. On average, patients provided 7 days of voiding data. In total, 3,981 voids were analyzed (7am-3pm: 1329, 3pm-11pm: 1535, 11pm-7am: 1117 voids). Setting our reference time period to 7am-3pm, the time period between 11pm-7am was associated with higher maximum volume (Mean difference: 57.2mL, 95% CI: 49.6 to 54.7mL) and lower number of voids (Mean difference: -0.39, 95% CI -0.57 to -0.20). The time period of 3pm-11pm was associated with lower maximum flow (Mean difference: -0.36mL/s, 95% CI -0.67 to -0.06mL/s).

CONCLUSIONS: Based on unique data provided by a home uroflowmetry device, late night/early morning voiding is associated with modestly higher volumes and slightly less frequency as compared to midday voiding. Late afternoon/evening voiding is associated with