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CLINICALLY MEANINGFUL DATA FROM REMOTE SPIROMETRY MONITORING IN ASTHMA MANAGEMENT IN A US-BASED OBSERVATIONAL STUDY

DENZIL M REID JYOTSNA MEHTA SHAIL MEHTA VARADA D DIVGI AND KARIM H ANIS

PURPOSE: Prevention of asthma exacerbations can be done through adequate self management at home. This study aimed to evaluate the feasibility and safety of a portable spirometer for unsupervised home spirometry measurements among patients with asthma.

METHODS: A single center, prospective, single-arm, open study recruited 25 patients with moderate or severe asthma. After a 45 min video training session by a respiratory therapist, patients performed daily spirometry at home with the Spirobank Smart MIR mobile spirometry system that was bluetooth connected to the KevaTalk app. Each spirometry examination was recorded and evaluated according to the ATS/ERS acceptability and repeatability criteria. Patients had to perform at least three technically acceptable maneuvers with the KevaTalk app guiding them if they had a good or bad blow. The best value of the three maneuvers were used for subsequent analyses. Patients also entered their daily check ins and symptoms via the KevaTalk Asthma app, tracked their controller and rescue medication use, filled up ATAQ questionnaires as well as were reminded of their action plans. Data obtained from spirometry was reviewed by nurses and pulmonologist and the Keva365 remote monitoring platform prompted alerts based on patient checkins, use of medication and PEF values in the red or yellow zone. Any escalations based on nurse review were reported to the office.

RESULTS: Mean age of the patients was 57 years. 1155 spirometry sessions were completed over the duration of 9 months of the study. Data for FEV1, FEV6, PEF FEV1/FVC, as well as the Best Predicted and LLN values was reviewed daily for patients. Flow volume loops during the sessions were reviewed to identify if the home spirometry was done correctly and retraining was provided if needed. The reported values were tracked over the duration the patient was enrolled in the Keva program. 60.9% of patients were found to have peak flows in their respective red zones at least once and 87% were found to have peak flows in their yellow zone at least once, during the course of the study. If 3 consecutive values were in the yellow or red zone along with worsening of symptoms, the physician's office was informed for further course of action.

CONCLUSIONS: The COVID-19 pandemic led to paucity of in office spirometry and face-to-face visits for asthmatic patients. Increasing the availability of spirometry with handheld devices along with a remote monitoring platform is useful for improving asthma control and reducing the risk of asthma-related hospital admissions and deaths.

CLINICAL IMPLICATIONS: Remote objective spirometry yields clinically meaningful information that helps with asthma patient management and prevent an exacerbation from becoming worse.

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No relevant relationships by Varada Divgi

No relevant relationships by Jyotsna Mehta

No relevant relationships by Shail Mehta

No relevant relationships by Denzil Reid

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