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Utilization of Telehealth in the Developmental Behavioral Clinics at the University of Nebraska Medical Center

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Mentor: Howard Needelman

Program: Developmental Behavioral Pediatrics

Type: Original Research

Background: Children with Developmental disabilities (DD) may require frequent health care visits and are more likely to experience unmet health services, leading to poor adult health and functional status. The prevalence and complexity of these conditions are increasing. Despite this, there are some barriers to care such as extended wait times, a limited pipeline of new Developmental-Behavioral Pediatrics (DBP) providers, most are in urban centers. Unique logistical, psychological, and behavioral barriers in accessing healthcare for children with DD include the need for special transportation and multiple or specialized caretakers. Telehealth may improve access to care and reduce the impact of transportation barriers. There is limited knowledge in the literature to evaluate telehealth's utilization and acceptability in

DBP. At the emergence of the pandemic, telehealth alternative to in-person health care rapidly expanded as new legislation passed and payers reimbursed telehealth more broadly. Before the pandemic, our DBP clinics did not utilize telehealth. With the pandemic's onset, there was a rapid transition to seeing all patients via telehealth to ensure continued care. Our clinics currently provide a hybrid of telehealth and in-person visits, mainly depending on families' preferences. There is limited knowledge in the literature to evaluate telehealth's utilization in DBP. This study aims to understand the utilization of telehealth and ensure continued care for our patients.

Methods: Descriptive analysis to determine the distribution of each indicator, P-values using a one-sample t-test when meeting the assumption of normality.

Results: We had 1030 patients, 325 (31.5%) females and 705 males (68.45%). Our patients were mainly Caucasians 647 (62.82%) and not Hispanic 770 (74.76%). We had 1257

(65.58%) clinic visits, and 660 (34.42%) missed visits before the implementation of telehealth. We had 1615 (72.49%) clinic visits and 613 (27.51%) missed visits after implementation of telehealth, despite one less provider. Our p-value for the difference in visits was < 0.0001 , suggesting that the average number of visits is different before and after the implementation of telehealth. Our p-value for the difference in missed visits was > 0.05 , implying that we do not have sufficient evidence to say that the average number of missed visits is different before and after the implementation of telehealth.

Conclusion: With ongoing shortages of DBP providers and unique transportation barriers for DBP patients, ongoing utilization of telehealth will help with improving access and continued care to the patients. Further data analysis may help identify different groups of patients that we may better serve with increasing telehealth utilization. ■

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Ergonomics of Mesh Placement in Robotic Versus Laparoscopic Inguinal Hernia Repair

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Program: General Surgery

Type: Original Research

Background: Differences in ergonomics between laparoscopic and robotic-assisted inguinal hernia repairs (LIHR vs. RIHR) have been previously studied. However, specific differences in the ergonomics of mesh placement between LIHR and RIHR remain to be determined. Our aim was to determine if there are differences in the ergonomics of mesh placement between LIHR and RIHR, as measured by upper extremity muscle activation.

Methods: Surface electromyography (EMG) of four upper extremity muscle groups was recorded bilaterally during mesh placement in five laparoscopic and five robotic inguinal hernia repairs. The following muscle groups were evaluated: upper trapezius (UT), anterior deltoid (AD), flexor carpi radialis (FCR) and extensor digitorum (ED). Muscle activation as a percent of maximum voluntary contraction and muscle fatigue as the median frequency of muscle activations was calculated.

Results: EMG analysis of the eight muscle groups revealed a trend towards increased right sided muscle activation in LIHR compared to RIHR (Table 1). Muscle activation of the right FCR was 7.67% in LIHR compared to 3.89% in RIHR ($p <$

0.001). RIHR had significantly higher activation of the left AD (9.22%) compared to LIHR (6.99%; $p = 0.044$). LIHR trended towards decreased muscle fatigue compared to RIHR. The level of fatigue of the right AD in LIHR was significantly lower compared to RIHR ($p = 0.05$).

Conclusion: Despite higher muscle activations in LIHR, LIHR had a lower level of muscle fatigue during mesh placement compared to RIHR. Additional studies are needed to determine if higher muscle activation protects against muscle fatigue in inguinal hernia repair. ■

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