American Academy of Child & Adolescent Psychiatry
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CLiPPs

WINTER HOLIDAY 2017

CLiPPs (**C**urrent **L**iterature in **P**ediatric **P**sychosomatics) *is a pertinent article review through the AACAP Physically Ill Child Committee for psychosomatic clinicians from a range of medical science journals and literature. We are very excited for our inaugural issue is finally here and have already begun working on our Summer 2016 edition.*

We are excited to present a hodgepodge of consult liaison pertinent reviews this issue. Feel free to share with your colleagues. Stay tuned for reprinting online in APM with liaison between our two organizations.

Happy Holidays!

Randomized Clinical Trial of Parent-Focused Treatment and Family-Based Treatment for Adolescent Anorexia Nervosa

Background and Objective: Anorexia has significant psychiatric and medical morbidity and an extremely high mortality rate. Since the onset is typically in adolescence (12-18yo), successful treatment usually involves the family. Family-based treatment (FBT) has received a lot of support and currently is marked as the most efficacious intervention for adolescents with anorexia. It was suggested by 2 previous RCT that separate parent and adolescent sessions could be as effective as therapy together. This study then compared the efficacy of FBT and parent-focused treatment (PFT) in adolescent anorexia nervosa among researchers prolific in FBT research. They hypothesized that PFT would be more efficacious than FBT, with the end result of more patients achieving remission at the end of therapy.

Methods: The single site study randomized 107 patients to either PFT or the control group of FBT (PFT n=52, FBT n=55). Patients were age's 12-18yo and met DSM IV criteria for anorexia nervosa or partial anorexia. They were assessed at four points during the treatment period – at baseline, at the end of treatment, 6 months and 12 months following treatment. All participants underwent manualized treatment and received 18 therapy sessions over a 6 month period. Each family had 1 therapist (FBT) or 1 therapist and 1 nurse (PFT) for the entirety of the study. Remission was defined as ≥ 95% of median BMI and an Eating Disorder Examination Global Score within 1 standard deviation of norms.

Results: Of the 107 initial participants, 90 (84.9%) completed the treatment (≥9 sessions/50% of the dose). Remission rates at the end of treatment were significantly higher for PFT (43.1%) compared to

FBT (21.8%) (p=0.016, odds ratio= 3.03, 95% CI = 1.23-7.46). The remission rates were still higher at 6 months follow up for PFT than for FBT (39.2% vs 21.8%), although no statistical significance (p=0.53). There was no difference between remission rates at 12 months following treatment (37% vs 29%, p=0.444). Those participants with more severe eating disorders did well in either treatment, but those with more eating disorder related obsessions/compulsions did better in FBT. Those with less obsessions and compulsions did better in PFT.

Conclusion: At the end of treatment, remission rates were higher with PFT than FBT for adolescents with anorexia nervosa, surprising the authors and experts in FBT. In the 6 and 12 months following treatment, there were no significant differences in the remission rates between PFT and FBT.

Take Away: Although FBT has long been considered the gold standard of treatment for adolescent anorexia nervosa, this study does demonstrate that PFT is something to strongly consider when treating this difficult population. There are some advantages to PFT compared to FBT such as being easier for clinicians who do not have formal family therapy training, the fact that there is no family meal which is a challenging part of FBT, and there are no expectations on the siblings, which can give the parents and therapist more time to work together.

References:

1. Le Grange, D., Lock, J., Accurso, EC, et al. Relapse from remission at two-to-four-year follow-up in two treatments for adolescent anorexia nervosa. J Am Acad Child Adolesc Psychiatry. 2014; 53: 1162-1167.

2. Hughes, EK., Le Grange, D, Court A, et al. Implementation of family-based treatment for adolescents for anorexia nervosa. J Pediatr Health Care. 2014; 28: 322-330.

Reviewer: Nicole Mavrides, MD, University of Miami Miller School of Medicine, Miami, FL

Source: Randomized Clinical Trial of Parent-Focused Treatment and Family-Based Treatment for Adolescent Anorexia Nervosa. Le Grange, D., Hughes, E.K., Court, A., Yeo, M., Crosby, R.D., Sawyer, S.M. J Am Acad Child Adolesc Psychiatry. 2016 Aug; 55(8): 683-92. pubmed link

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Delirium in Pediatric Cardiac Bypass Surgery

Background and Objectives: Delirium is a frequent complication of cardiac bypass surgery in adult and pediatric populations, with one recent prospective study finding delirium in 30% of an adult cohort after bypass surgery. However, there have not been systematic studies of incidence of delirium after bypass in a pediatric population, impacting the ability to recognize risk factors and develop prevention strategies. This prospective, observational study was designed to describe the incidence in a single pediatric cardiothoracic ICU (PCICU).

Methods: Patients were eligible if under 21 years of age and admitted to the PCICU after cardiothoracic surgery with bypass pump usage. 194 patients ranging in age from 1 day old to 21 years old screened once per nursing shift with the Cornell Assessment of Pediatric Delirium (CAPD) instrument by nursing staff trained in the instrument. Patients were not scored if they were comatose and unarousable to verbal stimuli. Developmentally delayed patients were scored as delirious if their CAPD score >9 and neurological functioning was not at baseline. Baseline patient characteristics and intraoperative variables were also measured.

Results: 49% of patients in the sample experienced delirium during their PCICU stay. 1342 patient-days were scored and 1.4% of days were not scored due to missed screenings. Patients experienced a mean of 2 delirious days. Delirium was most often detected on days 1-3 post-operatively. Baseline risk factors associated with development of delirium were: age <2 years, cyanotic heart disease, developmental delay, albumin <3 mg/dL (used as a marker of poorer nutritional status), higher RACHS-1 (Risk Assessment for Congenital Heart Surgery) score, and above-median PIM-2 (Pediatric Index of Mortality 2) score. Clinical factors associated with delirium were: longer bypass time, coma during PCICU stay, physical restraints, use of opiates or benzodiazepines for sedation, and need for respiratory support or vasopressors. A 60% increase in PCICU length of stay was associated with delirium.

Conclusions: The study cohort developed delirium at rates similar to adult populations, demonstrating that children undergoing cardiopulmonary bypass are highly susceptible to development of delirium, and universal screening and prevention should be considered. Findings point to preoperative vulnerabilities as a significant contributor. A limitation that may have decreased detection of delirium was that daily assessments did not assess patients overnight suggesting under-capturing of delirium rates in this population. While causality was not established, identified delirium risk factors may be candidates for interventional studies. This was a single-institution study and the authors suggest that a multi-center prospective study should be conducted to replicate these findings.

Take-away: This prospective study showed half of its patients undergoing cardiac bypass developed delirium, which was correlated with a significant increase in length of stay. Several demographic and clinical variables were associated with delirium that warrant scrutiny in risk assessment. Moreover, this study provides compelling data showing need for more awareness of and screening for delirium in a subspecialized patient population. More subspecialty delirium studies should be done to increase awareness and reduce complacency in our medical colleagues.

References:

1. Burkhart CS, et al. Modifiable and nonmodifiable risk factors for postoperative delirium after cardiac surgery with cardiopulmonary bypass. J Cardiothorac Vasc Anesth 2010 Aug;24(4):555-9.

Reviewer: Amanda Schlesinger, MD, PGY-5, Boston Children's Hospital, Boston MA; Supervisor: Chase Samsel, MD, Boston Children's Hospital, Boston, MA.

Source: Patel AK et al. Delirium in Children After Cardiac Bypass Surgery. Pediatr Crit Care Med 2017 Feb;18(2):165-171. pubmed link

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Effect of Timing of Psychiatry Consultation on Length of Pediatric Hospitalization and Hospital Charges

Background and objective: Patients with psychiatric disorders admitted to inpatient medical and surgical setting have longer hospital stays, higher hospital expenses, greater number of procedures, and increased number of rehospitalizations. This study looked at the impact of timing of a psychiatric consultation on length of hospital stay and total hospitalization charges during medical and surgical hospitalizations.

Methods: The study included pediatrics patients (up to age 18 years) referred to psychiatric consult service within the 6 months of study period at a free-standing tertiary pediatric hospital. The patients who were referred by critical care and solid organ transplant services were excluded. Data was collected via retrospective chart review to include information such as physical illness severity, psychiatric disposition at the time of discharge, total billing charges associated with the hospitalization, dates of admission, psychiatric consultation, and discharge.

Results: 279 children and adolescents (2-18 years of age) were included to the study. Most notable findings included length of stay and total charges. Using the ratio between observed length of stay and expected length, it was noted that there was significant association between delay in psychiatric consult service referral and longer than expected length of stay. Study also showed that patients with greater physical illness severity were referred to PCLS later during their admission, had longer stays, and higher total charges. After adjusting for psychiatric functioning, physical illness severity, and psychiatric disposition, authors found that a 10% decrease in referral time to psychiatric consult service was associated with a 7.9% shorter length of stay ($p<0.001$).

Conclusions / Commentary: This study supports that the timely involvement of psychiatric consult services is beneficial to the patients with psychiatric symptoms by decreasing the length of stay and total hospital charges while on medical and surgical units. In an adult study, it was noted that delayed psychiatric consultations were seen more often in women; surgical patients; those seen with a request to assess depression; and those seen with a diagnosis of adjustment disorder, delirium, or no psychiatric disorder. In this study, individual variables affecting delayed consultation were not studied, except for greater physical illness resulting in delay in involvement of PCLS. This study excluded patients in the PICU, but it is well reported that pediatric delirium is also associated with increase in PICU costs and length of stay.

Take-away: When patients with psychiatric symptoms are admitted to the medical and surgical units, timely involvement of psychiatric consultation services can decrease length of stay and cost of

hospitalization, especially in patients with greater physical illness. As CL psychiatrists, we should continue to work on improving the process of identifying patients who will benefit from psychiatric consultation on medical/surgical services.

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1. Kishi Y, Meller WH, Kathol RG, Swigart SE. Factors affecting the relationship between the timing of psychiatric consultation and general hospital length of stay. Psychosomatics. 2004 Nov-Dec;45(6):470-6.

2. Traube C, Mauer EA, Gerber LM, Kaur S, Joyce C, Kerson A, Carlo C, Notterman D, Worgall S, Silver G, Greenwald BM. Cost Associated with Pediatric Delirium in the ICU. Crit Care Med. 2016 Dec;44(12): e1175-e1179.

Reviewers: Yesie Yoon MD, FAAP, Associate Professor, University of Alabama at Birmingham

Source: Bujoreanu S, White MT, Gerber B, Ibeziako P. Effect of timing of psychiatry consultation on length of pediatric hospitalization and hospital charges. Hosp Pediatr. 2015 May;5(5):269-75. pubmed link

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Psychiatric Disorders in Adolescents with Single Ventricle Congenital Heart Disease

Background and Objectives: Critical congenital heart disease (CHD) is associated with neurodevelopmental and psychiatric morbidities, including but not limited to ADHD and reduced quality of life, in surviving children. Previous studies have been with heterogenous CHD populations and rely on parent- and self-report measures. This study is the first to report clinician-derived psychiatric outcomes in adolescents with single ventricle CHD who underwent Fontan procedure. Their hypothesis was that those adolescents with single ventricle CHD would have a higher incidence of psychiatric disorders compared to the referent group and that those with genetic abnormalities would have more psychiatric morbidity.

Methods: This is a single center cross-sectional study with neurodevelopmental, psychiatric, and brain MRI assessments of 156 adolescents with single ventricle CHD who had underwent the Fontan procedure. Patients were ages 10-19 years old and all had to be able to undergo MRI. The referent group of 111 adolescents could not have any medical conditions that would affect brain structure or function. Psychiatric evaluation included semi-structured psychiatric interview (the KSADS-PL), clinician rated BPRS for Children, and parent and self-report ratings of anxiety, ADHD, and depressive symptoms. Eighteen risk factors examined were patient characteristics, IQ, operative and medical history characteristics, and concurrent brain abnormalities. Patients underwent genetic evaluation and neuropsychological evaluation with the WISC or WAIS.

Results: Compared to referents, patients were lower birth weight, gestational age, family social status and IQ. They were also younger in age and more likely to have abnormal MRI findings. CHD cohort with genetic abnormalities were more likely to have a neurologic event. 102 (65%) of adolescents with single ventricle CHD compared to 24 (22%) of referents had a lifetime psychiatric diagnosis specifically with a fivefold rate in anxiety disorders and in ADHD. 37 (36%) of patients with a lifetime psychiatric diagnosis had received pharmacological treatment. 46% of patients had a current psychiatric diagnosis compared to 11% of the referent group and of the 46%, 30% of them were receiving pharmacological treatment. The CHD group scored lower on primary psychosocial functioning and scored worse on measures of anxiety, disruptive behavior, and depressive symptoms compared to referents; the CHD group also reported more post-traumatic stress symptoms. Genetic comorbidity did not impact most psychiatric outcomes and presence of brain abnormalities was not significantly associated with lifetime anxiety or ADHD diagnosis or CGAS scores in bivariate models. Risk factors for anxiety disorder, ADHD, and lower CGAS were lower birth weight, longer duration of deep hypothermic circulatory arrest, lower IQ, and male gender.

Conclusions: Patient specific demographics, perinatal, medical and global composite measures of neurologic risk are better predictors of global psychosocial outcomes than are intraoperative factors. Psychiatric disorders in critical CHD may be due to reduced neurocognitive abilities especially in self-control leading to chronic stress and less adaptive coping. Further studies are needed on psychosocial variables such as parental anxiety and their contribution to separation stress and restricted socialization in children with CHD. Studies are also needed on barriers to accessing treatment in this population. Limits of the study are the retrospective medical history, the study being only in single center, and the genetic testing not being whole exome sequencing. Study strengths are the structured interviews combined with parent- and self-report measures which reduces bias.

Take Away: Adolescents with single ventricle CHD after the Fontan procedure had three times the risk for a lifetime psychiatric diagnosis compared to general youth and these include ADHD and anxiety disorders as well as post-traumatic stress symptoms. All patients with single ventricle CHD should be screened for psychiatric vulnerabilities in childhood to facilitate earlier intervention of psychotherapy and/or pharmacotherapy and those at risk should be referred for treatment.

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1. Holland JE, Cassidy AR, et al. Psychiatric Disorders and Function in Adolescents with Tetralogy of Fallot. *J Pediatr* 2017 Aug; 187:165-173.
2. Kasmi L, Bonnet D, et al. Neuropsychological and Psychiatric Outcomes in Dextro-Transposition of the Great Arteries across the Lifespan: A State-of-the-Art Review. *Front Pediatr* 2017; 5:59. Epub 2017 Mar 24.
3. Wang Q., Hay M., et al. The prevalence and predictors of anxiety and depression in adolescents with heart disease. *J Pediatr* 2012; 161: 943-946.

Reviewer: Maalobeeka Gangopadhyah, MD, Morgan Stanley Childrens, NY Presbyterian/Columbia

Source: DeMaso D, Calderon J, Taylor G, et al. Psychiatric Disorders in Adolescents with Single Ventricle Congenital Heart Disease. Pediatrics 2017 Mar 139(3). AAP link

CLiPPs Feedback

We appreciate any feedback for our young, developing review series.

CLiPPs is edited by Chase Samsel, MD, Boston Childrens Hospital and Dana-Farber Cancer Institute, Harvard Medical School, Boston, MA 02115. All critical summaries are written by the designated reviewers.

CLiPPs was created in 2015 and named at the AACAP Annual Conference during the Physically Ill Child Committee Meeting. *CLiPPs* thanks its reviewer team for their time and dedication educating colleagues.

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