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ABSTRACTS OF THE 2019 PEDIATRIC ENDOCRINOLOGY NURSING SOCIETY CONFERENCE

Nursing Research

001–Understanding Stress of Inpatient Nurses Caring for Pediatric Diabetes Patients

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Background: With the opening of an outpatient Pediatric Diabetes Center, patients with diabetes were more often being admitted. In order to focus inpatient nurse education, we wanted to understand their level of comfort with diabetes management.

Aims: This Quality Improvement (QI) project's goal was to understand and reduce the stress levels of inpatient nurses caring for pediatric diabetes patients by assessing stress and providing educational in-services over 12 months.

Methods: The diabetes team provided in-services for pediatric medical (PM) and intensive care unit (PICU) nurses. Pre-education, nurses reported stress related to each diabetes topic using a stress thermometer (stress assessing tool, 0=mild, 10=severe). Education included: pathophysiology, meters, injections, insulin pens, vial/syringe, hyperglycemia, ketones, hypoglycemia, carbohydrate counting, calculating insulin doses, technology, and overall management. Nurses were also administered a stress thermometer post-education.

Results: Aspects of diabetes care most stressful were identified. For PM nurses, average stress scores decreased from pre to post education for the topics that had the highest stress: technology (4.7 vs. 3.9), pathophysiology (4.0 vs. 2.7), and carbohydrate counting (3.9 vs. 3.4). For PICU nurses, average stress scores decreased from pre to post education for: pathophysiology (5.5 vs. 2.7), meters (4.2 vs. 2.2), hyperglycemia (4.0 vs. 2.8), and hypoglycemia (4.0 vs.1.4). However, the average stress score increased for PICU nurses from pre to post education for the topic of carbohydrate counting (4.0 vs. 4.7).

Conclusions: Post-education, nurses' average stress mostly decreased however the most stressful topics differed between PM and PICU nurses. Also, the stress level increased for one of the topics for the PICU nurses. This may indicate many were not aware of the magnitude of knowledge needed or education provided was not suited for them. These findings furthermore suggest it is necessary to develop educational tools targeted to the type of care delivered on the unit.

Clinical Implications: Diabetes management requires in-depth education. The stress thermometer is a useful tool to evaluate nurses' stress levels and understand where to focus education.

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003–Initial Psychometric Evaluation of a Pediatric Diabetic Peripheral Neuropathy Screening Tool

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Background: Diabetic Peripheral Neuropathy (DPN) is the presence of signs and/or symptoms of peripheral nerve dysfunction among people with diabetes after the exclusion of other causes. DPN is well recognized as a major complication of diabetes in adults, but there is considerable uncertainty as to its incidence, prevalence, diagnosis and prognosis among youth. Our team previously applied qualitative methods to develop a content-valid youth-report DPN symptom questionnaire. Our research revealed youth with T1D experience DPN symptoms measurable by self-report.

Aims: To describe the development of a self-report measure of DPN symptoms for youth aged 8-22 years.

Methods: This was a cross-sectional, observational study. Subjects included a total of 203 youth: 151 youth with T1D and 52 with other endocrine diseases. Of the 151 youth with T1D, 5 were recruited from the inpatient unit and 146 from the outpatient clinic. Subjects with other endocrine disorders (n=52) were recruited from the outpatient clinics. Subjects completed the 25-item DPN questionnaire on a single occasion. Data including duration of diabetes/diagnosis, HgbA1c and lab data was abstracted from the medical records.

Results: Qualitative procedures supported the development of a content valid pool of 25 DPN symptoms items. The best-fitting confirmatory factor analytic (CFA) model differentiated items that contributed to 3 internally consistent subscales: pain (5 items, $\alpha = 0.84$); anesthesia (3 items, $\alpha = 0.76$); paresthesia (5 items, $\alpha = 0.83$). IRT (Item response theory) parameters indicated the scales measure a wide range of symptom severity with a high degree of precision: pain ($\theta = 2.73$); anesthesia ($\theta = 4.25$); paresthesia ($\theta = 2.88$). Scale construct validity was supported by evidence that youth withT1D report significantly greater pain ($d = 0.66$), anesthesia ($d = 0.63$), and paresthesia ($d = 0.60$) symptoms than youth with other endocrine conditions.

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Conclusions: This is a major step towards the validation of a pediatric DPN screening tool. Further research will focus on testing our hypotheses about the scale's association with clinical data.

Clinical Implications: A valid pediatric DPN screening tool will enable children at risk for, or in the early stages of DPN, to be identified properly, changing the current standard of care for youth with T1D.

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004–Peer-Based Interventions for Managing Type 1 Diabetes in Adolescents: A Systematic Review

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Background: Adolescents with Type 1 diabetes (T1D) have the poorest control when compared to other age groups. The majority of adolescents do not meet the American Diabetes Association (ADA) goal for hemoglobin A1c (HbA1c). Previous research has determined effective interventions in improving glycemic control and how peer interventions impact T1D. Prior systematic reviews did not address the quality of life. This systematic review includes quality of life as an objective in managing adolescents with T1D.

Aims: The purpose of this systematic review was to investigate the effectiveness of peer support interventions on the quality of life (QoL) and HbA1c in adolescents who have T1D.

Methods: Systematic searches were performed in three databases: Medline, CINAHL, and PyschINFO in January 2018. The criteria for inclusion consisted of: an objective to include a peer intervention, adolescent age group (10-18 years old), HbA1c and/or QoL outcome measure, peer-reviewed English language articles, and experimental and quasi-experimental method design. Articles were screened and evaluated using PRISMA guidelines and the Johns Hopkins Nursing Evidence-Based Practice Research Evidence Appraisal Tool. Date range included 2013-2016 with one article from 1989.

Results: Nine articles were chosen for full review. Three of the articles used the same study, which included ongoing data collection at different intervals and using moderators. Five of the studies were on-line peer support and two were in-person support. Most studies showed an overall improvement in quality of life and peer support. There are mixed results regarding how peer intervention affects HbA1c.

Conclusions: There is evidence that peer support has shown to improve quality of life. However, evidence demonstrates peer support is moving towards internet-based support, which may exclude lower socioeconomic groups, thus widening the gap in healthcare. HbA1c may not be the best indicator of glycemic control in adolescents because other factors, such as puberty, affect glycemic control.

Clinical Implications: Understanding that peer interaction has the potential to positively impact adolescents with T1D allows for many opportunities to create programs dedicated to peer support. Pediatric endocrine nurses can utilize multi-disciplinary frameworks to develop peer support programs.

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006–National Survey of Neonatal Growth Measurement Practices

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Background: Neonatal growth measurements, including frontal-occipital circumference (FOC), weight, and length, are used to assess size for gestational age, determine fluid and nutritional requirements, calculate medication doses, identify surveillance needs, and serve as a baseline for postnatal growth monitoring. Measurements are often inaccurate and unreliable. While evidence-based guidelines for growth measurements exist, little is known about current practices.

Aims: Describe neonatal nurses' growth measurement knowledge, attitudes, practice behaviors, bases of practice knowledge, and facilitators and barriers to changing practice.

Methods: A descriptive, exploratory design with an online survey was used. The neonatal growth measurement survey (NGMS), created and pilot tested for validity and reliability by the research team, was distributed through the Association of Women's Health, Obstetrical and Neonatal Nurses (AWHONN) and the National Association of Neonatal Nurses (NANN).

Results: Of the 301 participants (members of AWHONN 51.8%, NANN 31.9%, both organizations 16.3%), there were 50.5% BSN and 39.5% graduate degree nurses practicing in well newborn (24.9%), special care nursery (23.3%), NICU (36.2%), and regional NICU (15.6%) units, with a mean 18.7 years of neonatal experience. Of 16 knowledge items, five items were answered incorrectly by more than half of participants. Most thought their measurements were accurate or highly accurate (FOC 96.7%, weight 99.3%, length 87.1%). Weights (72.8%) and lengths (60.4%) were routinely measured once before recording, compared to two or more times for FOC (61.9%). Measurements were frequently recorded using large increments of 0.25-1 cm (FOC 71.2%, length 57.6%) compared to smaller weight increments of 1-10 grams (78.8%). A majority reported measuring lengths without assistance from a second person (74.9%) using a tape measure (76.7%) without Frankfort plane positioning (96.7%). The most common bases of practice knowledge were clinical practice guidelines (86.7%) and unit policies and procedures (85.9%). Comparisons between AWHONN and NANN members, levels of care, education, and years of neonatal experience will be presented.

Conclusions: Knowledge gaps and areas for practice improvement were identified.

Clinical Implications: NGMS results can be used by endocrinology and neonatal nursing experts to develop interventions and targeted implementation strategies to improve growth measurement practices, thereby optimizing growth monitoring and clinical decision-making.

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Case Presentations

007–Suppression of Pituitary Axis from Inhaled Corticoteroids

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Patient Demographics: RS is a 16-year-old Caucasian female.

Clinical Presentation: RS initially presented 2 years ago with growth arrest for 2 years. She had menarche a year before with subsequent scant, irregular menses. No cause was determined for her growth arrest.

RS returned one year later with the complaint of "fatty legs". She had continued scant, irregular menses and no interval growth. Large fatty deposits encased her thighs, but she was otherwise a thin, competitive athlete.

Relevant Past History: At age four RS was diagnosed with asthma requiring frequent oral steroid bursts until age seven when she began daily treatment with Dulera (mometasone-formoterol), an inhaled steroid.

Evaluation: At her initial evaluation, RS had a normal workup including CBC, UA, celiac screen, IGF-1, prolactin, thyroid studies and BMP. Her bone age was within 2 SDs of age related norms.