Transition of Diabetes Care from Pediatrics to Adulthood: Preventing the Freefall

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2016 Washington Diabetes Summit
Saturday, October 8, 2016
Presenter Disclosure Information

In compliance with accrediting board policies, the American Diabetes Association requires the following disclosure to participants:

Komal Patil-Sisodia, MD:

Disclosed no conflict of interest
Objectives

• Understand the differences between pediatric and adult approach to DM care.
• Understand the issues emerging adults face as they transition care to an adult provider.
• Review the available resources for pediatric and adult populations.
• Learn how to assemble a multidisciplinary DM care team.
"We have to continually be jumping off cliffs and developing our wings on the way down."
Introduction

• Transition from pediatric to adult care for DM management is difficult.
• Studies worldwide have documented gaps in care that occur during this transition phase, which lead to poorer outcomes emerging adults.
• ADA 2011 Position Statement: Diabetes Care for Emerging Adults: Recommendations for Transition From Pediatric to Adult Diabetes Care Systems
Epidemiology

- SEARCH for Diabetes in Youth Study:
  - 2001: 154,000 youth (age <20 years) with DM
  - 2010: 215,000 youth (age <20 years) with DM
- Type 1 DM prevalence has doubled worldwide.
  - Expected to double again in 15-20 years.
- Increased rates of childhood obesity are increasing incidence of type 2 DM.
“Emerging Adulthood”

• Age range of 18-30 years.
• Young adulthood does not immediately follow adolescence, but begins in late 20s/early 30s.
• 20-somethings delay assuming adult roles in marriage, parenting, and work compared with young adults in previous generations.
• Also need to take into account generational differences in how patients and their parents engage with healthcare providers.
  ▫ No studies or data exist on this topic in relation to DM care.
Treatment Goals & Screening in Pediatric DM Care

- Goal A1C < 7.5% or <7% without excessive hypoglycemia.
- Pre-meal blood sugars 90-130 mg/dL.
- Bedtime/overnight blood sugars 90-150 mg/dL.
- Screening for associated autoimmune illnesses in type 1 DM (thyroid and celiac).
- Annual lipid screening.
- Exercise & weight management in type 2 DM.
  - Screening for CV risk factors.
- Screening for retinopathy, neuropathy, and nephropathy in all patients.
Treatment Goals & Screening in Adult DM Care

- Goal A1C <7%; individualize based on age and risk of hypoglycemia.
- Pre-meal blood sugars 80-130 mg/dL.
- Peak postprandial blood sugars <180 mg/dL.
- Goal BP <140/90 (or <130/80 in select populations).
- Initial lipid screening at time of diagnosis, and annually thereafter if indicated or every 5 years if panel at goal.
- Annual DM nephropathy screening with spot urine MA/Cr ratio and GFR to screen for microalbuminuria and CKD.
- Annual screening for DM retinopathy (if exam is negative for DR 2 years in a row, then may consider every other year.
- Annual screening for DM neuropathy with 10-g monofilament testing plus either vibration sensation, pinprick, or temperature testing.
- Weight management with diet & exercise.
Pediatric Approach to DM care

• Assessment of individual vs. family barriers.
• Customize treatment plans to the needs of the family.
• Encouragement/teaching of self-care skills at appropriate stages of development.
• DM education refresh every few years.
• Working with schools/daycare providers to improve their DM education and skills to help care for young children with diabetes.
Teenage Stress
THE TOP TEN*

1. School
2. Family/parents
3. Friends
4. Work
5. Sports
6. Homework
7. Lack of Sleep
   Love Life
8. College
9. Appearance
   Extracurricular activities
   Grades
   Relationships
   Tests
10. Lack of time

* Note: This list reflects multiple answers from a test group of ninety, 10th-grade students. The number 1 answer was listed by almost 50% of the students. The number 2 answer was listed by 30% of the students and the number 3 answer was included by almost 20% of the respondents.
Teenagers are reporting stress levels that rival those of adults.

Issues Affecting Transitional Care

- Differences between the pediatric and adult care.
- Poor glycemic control.
- Loss to follow-up care.
- Acute complications.
- Psychosocial issues.
- Reproductive health issues.
- Substance use and abuse.
- Chronic complications.
### Differences in DM Management

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<th>Pediatric</th>
<th>Adult</th>
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<td>• Family-centered approach.</td>
<td>• Individualized approach.</td>
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<td>• Parent-driven approach to address varying stages of cognitive ability and emotional maturity.</td>
<td>• Shorter visits focusing on medical issues.</td>
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<td>• Emphasis on fitting DM management techniques into family lifestyle.</td>
<td>• Control of access to healthcare information in the hands of the patient.</td>
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<td>• Autonomy to make own medical decisions.</td>
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Poor Glycemic Control

- **SEARCH data:**
  - 32% of youth w/ T1DM ages 13-18 years achieve A1C target.
  - 18% of youth w/ T1DM age ≥ 19 years achieve A1C target.

- **NHANES:**
  - 56% of adults are able to achieve target A1C.

- Teenagers with T1DM or T2DM have the highest proportion of A1C ≥9.5%.
  - Estimated at 25%.
Cardiovascular Risk Factors

- Higher prevalence of CV risk factors in youth with T2DM compared to T1DM.
- Increase in obesity rates now translating to similar increases in CV risk in T1DM patients.
- Obesity is increasing risk of hyperlipidemia, hypertension, and fatty liver disease.
Loss to Follow-Up Care

- Loss of private health insurance.
- Distractions interfere with successful DM management – work, school, social.
- High risk of disengagement from health care in emerging adults leads to:
  - Increased acute and chronic complications.
  - Increased utilization of emergency services and hospital services.
- Higher relative risk of death in young adults with diabetes.
Acute Complications

- Include:
  - Hypoglycemia and hypoglycemia unawareness.
  - Hyperglycemia.
  - Diabetic ketoacidosis.
- Difficult to balance of school and/or work.
- Loss of parental supervision and less frequent medical visits increase the risk of acute complications.
- DCCT data showed higher rates of severe hypoglycemia in adolescents age 13-17 years at study entry and age 20-24 years at study end.
Psychosocial Challenges

- Occur more commonly in patients with DM.
- Diabetes-specific stressors:
  - Lack of clear and concrete goals for diabetes care.
  - Feeling discouraged/overwhelmed by diabetes regimen.
  - Uncomfortable interactions with family/friends/coworkers about diabetes.
  - Guilt/anxiety when off-track with diabetes management.
  - Worrying about future and possibility of complications.
Mental Health Concerns

• Diabetes self-care is affected by:
  ▫ Anxiety
  ▫ Depression
  ▫ Eating disorders – anorexia, bulimia, disordered eating behaviors

• Compounded by insulin omission and fear of hypoglycemia.
Reproductive Healthcare

• Contraception and preconception counseling is especially important to female patients with DM.
• Lower contraceptive use in adults with diabetes (ages 20-44) than in adults without diabetes
  ▫ 61% versus 73%
• Estimated that less than 25% of women with T1DM or T2DM are aware of maternal and fetal risks of uncontrolled diabetes during pregnancy.
• Counseling on STD risk is also important.
Substance Use & Abuse

- Alcohol:
  - Increases risk of severe hypoglycemia.
  - Worsens glycemic control.
- Tobacco:
  - Increases CV risk.
  - Increases microalbuminuria risk.
- Need to discuss importance of abstaining from substance use/abuse, especially while driving.
- Also need to address importance of BG monitoring prior to driving.
Emergence of Chronic Complications

- Clinically apparent DM complication rates are low, but there is evidence of early microvascular complications:
  - Microalbuminuria
    - 10% of adolescents w/ T1DM
    - 30% of adolescents w/ T2DM
  - Hypertension (T2DM > T1DM)
  - Retinopathy (T2DM > T1DM)
  - Neuropathy: ~20% adolescents w/ DM
Emergence of Chronic Complications (cont.)

• Macrovascular complications:
  ▫ Early atherosclerotic disease seen in children/adolescents with elevated LDL, reduced HDL, tobacco use, and higher A1C levels.
  ▫ Complications are infrequently treated in pediatrics, but should be addressed prior to transition.
Which would you prefer?

Photo credit (left): Free Fallin’ gallery on Flickr
Photo credit (right): www.skydivefortcollins.com
Planning the Transition of DM Care

• Recommended that transition occur over the course of a year at minimum.
• Planning checklists available to help with transition.
Multifaceted Transition Care

- Transition Coordinator
- Endo Provider
- DM Education
- Technology
- Support Groups
- Mental Health Resources
- Nutrition

Patient
LEAP: Let’s Empower & Prepare

- Sequeira PA, et al.
- 81 patients from 3 clinics
- Control Group – usual care
- Intervention Group - structured transition program with tailored diabetes education, case management, group education classes, and access to a newly developed young adult diabetes clinic and transition website
- At 12 months, IG compared with CG participants had:
  - Improved glycemic control (-0.40 ± 1.16% vs. 0.42 ± 1.51% [4.4 ± 12.7 mmol/mol vs. 4.6 ± 16.5 mmol/mol], P = 0.01)
  - Improved incidence of severe hypoglycemia (0.0% vs. 16%, P = 0.02)
  - Improved global well-being (P = 0.02)
Transition Care Clinics

- Joslin Diabetes Center – Transition Program for Young Adults
- C.S Mott Children’s Hospital – University of Michigan
- Children’s Hospital of Wisconsin
- UCSF – Transition Program
- CHLA – LEAP Program
- Ohio State University – Adolescent Transition Program
ADA Recommendations

1. Prepare adolescent and family for transition 1-2 years in advance.
2. Focus on DM self-management skills for adolescents & their parents to transfer responsibility.
3. Address the differences between pediatric and adult providers in treatment approach to DM.
4. Provide a comprehensive written summary/checklist to patient and future adult care provider about patient’s history, medications, complications, and referrals.
ADA Recommendations (cont.)

5. Recognize vulnerability of this population to loss of consistent healthcare and difficulty with adherence to self-care regimen.
6. Refer to an adult provider well-versed in intensive DM management for patients with T1DM and T2DM.
7. Empower patients with resources to help insure success – online resources, transition coordinator, etc.
8. Prescribe individualized, developmentally appropriate care that emphasizes adherence to DM self-management/medications to prevent complications.
9. Evaluate and treat for disordered eating behaviors and affective disorders.
ADA Recommendations (cont.)

10. Follow-up visits every 3 months for T1DM and every 3-6 months for T2DM not on insulin.
11. Screen patients for micro- and macrovascular complications.
13. Contraception, risk of STDs, preconception counseling, and substance use/abuse should be discussed at length.
14. Establish and coordinate primary and preventative healthcare with a separate primary care provider.
Summary

- Pediatric to adult DM care transition is difficult and there is no standardized approach.
- Preparing the patient and their family well in advance is important for success.
- Pediatric and adult DM providers need to work in tandem for this transition to be successful.
- Transitional diabetes care clinic development is necessary.
- More research is needed to develop best practices for a successful transition.
References


• Standards of Medical Care in Diabetes—2016: Summary of Revisions. Diabetes Care 2016 Jan; 39(Supplement 1): S4-S5.


Thanks for your attention!

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