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Effectiveness of Different Styles of Diabetic Education on Outcomes of the Type II Diabetic Patient

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Abstract

• The purpose of this project is to determine if there is a significant advantage to certain diabetic education strategies that yield better outcomes in regards to control of diabetes.

Introduction

Type II diabetes mellitus is a global problem that is seeing the average age of onset decrease and an increase in the annual financial burden. It is a disorder where the pancreas creates insulin but the body develops resistance to that insulin (Matti et al., 2015). When this occurs, it manifests with elevated serum glucose levels, polydipsia, urination, weight frequency, and fatigue (Vermeire et al., 2009). Even though, no studies were considered break through, multiple offered valuable information.

Group Based Education

Steinsbekk, Rygg, Lisulo, Rose and Fretheim (2012) assessed 21 studies that measured outcomes 1-2, 2-4, and 3-5 years.

Individual Based Education

Duke, Colagiuri, and Colagiuri (2009) found 9 studies that measured metabolic outcomes at 6, 12, and 18 months. 3 of these studies specifically studied the effects of individual based education versus group based education.

Computer Based Education

Pal et al., (2013) comprised a systematic review of 16 RCTs that studied the effects of metabolic control in type II diabetics. (2012) studied the effects of individual based education versus group based education.

Statement of the Problem

• Even though it is well known that education leads to improvement in outcome measures like glycemic control, adherence to treatment, and reduction in complications, there is no “standard of care” currently in place for the amount or type of education a type II diabetic should receive (Bagnasco et al., 2014). It is accepted that education should be incorporated in the treatment of diabetes. It isn’t fully known if there is a significant difference between the types of diabetes education and its effects on outcomes (Unick et al., 2011).

Research Question

• In adults with type II diabetes, are there any greater benefits of individual education versus group or computer based education in control of their diabetes? Are there any additional gains other than control of diabetes (i.e. weight loss, reduction of cholesterol)?

• In adults with type II diabetes, does group based education versus individual or computer-based education offer psychological advantages? Are there obvious pros and cons to each mode of education delivery?

Literature Review

Methods:

• Databases: CINAHL, PubMed, and Cochran.
• Key Words: “Diabetes, Diabetic, Type II, Education, Diet, Computer-based, Individual-based, Group-based”
• Filters: Articles published within the last 10 years
• Inclusion Criteria: Type II diabetics, who were not taking insulin, with no major comorbid conditions, and had metabolic measurements (HbA1c values and FPG).
• Required to use some form of diabetic education (individual-based and/or group-based and/or computer-based).
• Outcomes: Overall, 14 studies met the criteria (8 from PubMed, 3 from Cochran, and 3 from CINAHL).

Section 1. Group Based Education:

• Measurements in 13 studies found significant reduction in HbA1c at 6 months with a reduction of 0.44% points (p < 0.0006), at 12 months with a reduction of 0.46% points (p < 0.001) in 11 studies, and 2 years with a reduction of 0.87% points (p < 0.0001) in three studies (Steinsbekk, Rygg, Lisulo, Rose, & Fretheim, 2012).

Section 2. Individual Based Education

Overall, 5 studies were reviewed. Duke, Colagiuri, & Colagiuri (2009) reviewed 9 studies.

Goudwaard (2004) study: Mean decrease of 1.3% HbA1c and 0.4% with intervention at 6-9 and 12-18 months follow up compared to 0.4% and 0.6% respectively.

Hawthorne (1997) study: Mean decrease of 0.1% in the intervention versus a 0.04% gain in the control group at 6 month follow up.

Hiss (2001) study: Mean decrease of 0.3% at the 12-18 month follow up in the intervention versus a 0.2% decrease in the control group.

Ko (2004) study: Mean decrease of 0.5% decrease in HbA1c at the 12-18 month follow up for the intervention versus a 0.2% decrease in the control group.

Shibayama (2007) study: Mean decrease of 0.1% increase in their HbA1c at their 12-18 month follow up for the intervention versus no change in the control group.

Section 3. Computer Based Education

Pal et al., (2013) reviewed 10 studies, all studies combined to show a significant (p < 0.0001) decrease in HbA1c in favor of the intervention group over the control at 6-12 months (Pal et al., 2013).

Discussion

Individual Therapy Versus Group Based Therapy

• The question that comes up is: how does diabetic education actually improve the HbA1c values? Are the patients eating better? Are they taking their medication more religiously? Are they just overall better educated and able to recognize when their diabetes is not controlled?

• Steinsbekk found statistically significant reduction in HbA1c but it doesn’t appear to be clinically significant. Certainly education is great adjuvant treatment for the type II diabetic but education alone is not enough to control diabetes in all populations.

• Cinar & Shou (2014) saw only modest decrease in HbA1c and FPG at 6 months while Mukaddar & Beyazit (2009) saw dramatic drops in HbA1c in only 2 months. This significant difference only highlights the challenge when comparing study to study. Mukaddar’s study had individuals from Turkey where routine diabetic education was not offered while Cinar’s control group had routine education.

Computer Based Education

Pal et al., (2013) found varying results with the majority showing a significant improvement in HbA1c in 6 months. However, the studies spanning countries, had different participants. The question arises: do the patients have enough education to understand the importance of their routine care?

• Even though it is well known that education leads to improvement in control of diabetes (i.e. weight loss, reduction of cholesterol)? Are the patients eating better? Are they taking their medication more religiously? Are they just overall better educated and able to recognize when their diabetes is not controlled?

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Applicability to Clinical Practice

• Overall, it appears that education at any level should be incorporated in the usual care for type II diabetic patients.

• Studies show varied results but a direct relationship is seen between the amount of education received and the improvement on their metabolic and psychological outcomes.

• More effective strategies are available for the provider to consider.

• Side effects of diabetic education are very limited and only a few cases of anxiety have been documented.

• Incorporate the patient in the decision as to the type of education they receive.

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