

Association between infant Feeding Practices and Insulin – Dependent Diabetes Mellitus (IDDM)

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الخلاصة

تهدف الدراسة الحالية الى تحديد العلاقة بين الممارسة التغذوية للاطفال والاصابة بداء السكري المعتمد على الانسولين . اجريت الدراسة في المركز الوطني للسكر في مدينة بغداد للفترة من كانون الثاني ٢٠٠١ لغاية كانون الثاني ٢٠٠٢ . شملت عينة الدراسة (٢٠٠) أم لاطفال دون سن الثانية عشرة مصابين بداء السكر المعتمد على الانسولين وجمعت البيانات الخاصة بالبحث من خلال استخدام استمارة استبائية تم بناؤها وتصميمها من قبل الباحث لاغراض تحقيق هدف الدراسة الحالية . تم تحقيق ثبات اداة القياس من خلال استخدام معامل ارتباط بيرسون والذي كان (٠,٨٧) ، اما مصداقية الاداة المستخدمة فقد تحققت من خلال عرضها على مجموعة من الخبراء لغرض مراجعتها وتقويم مصداقيتها . قام الباحث باستخدام الاحصاء الوصفي لغرض تحليل بيانات الدراسة ، اظهرت نتائج الدراسة الحالية بأن معظم اطفال العينة المصابين بداء السكري المعتمد على الانسولين كانوا قد ارضعوا رضاعة صناعية بينما القليل منهم ارضعوا رضاعة طبيعية . استنتجت الدراسة الحالية ان داء السكر المعتمد على الانسولين قد ظهر بصورة كبيرة بين اطفال الرضاعة الصناعية مقارنة بنسبة قليلة بين اطفال الرضاعة الطبيعية . توصي الدراسة بضرورة استمرار الامهات بالرضاعة الطبيعية على الاقل حتى الستة اشهر من عمر الطفل خصوصاً بين العوائل المعرضة لخطر الاصابة بهذا المرض .

Abstract

The percent study aimed to determination the association between infant feeding practices and Insulin-Dependent Diabetes Mellitus (IDDM). The study was conducted at (he National Center of Diabetes in Baghdad City the Capital of Iraq throughout the period of January 2001 to January 2002.

The sample was comprised of (200) mother of Insulin-Dependent Diabetes Mellitus (IDDM) of children under age of 12 years old. Data was collected through the use of a questionnaire that constructed by researcher and which were developed for the purpose of the present study.

Reliability of the instruments was determination through use of person correlation coefficient for the test- retest approach was (0.87) and the instruments validity was determined through content validity which was determined by a panel of expert. Analysis of data was performed through the application of descriptive statistics.

The study result had revealed that the majority of diabetic children are bottle-feeding and the lowest are breast feeding, these findings mean that is association between infant feeding practices and the incidence of Insulin - Dependent Diabetes Mellitus (IDDM).

The study concluded that the diabetes mellitus was highly incidence among children of artificial feeding and low incidence among children of breast-feeding.

It was also recommended that the duration of breast-feeding should be continuous at least until the first six mouths of the child age especially those of families at risk of Diabetes.

Introduction

The risk for developing IDDM in childhood may be influenced by infant feeding practices. A large scientific literature that include ecological studies, animal experiments, human case-control studies, and an ongoing randomized controlled trial in children suggests an association between artificial feeding in first 3 to 6 months of life and the later development of IDDM ⁽¹¹⁾.

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insulin-dependent diabetes mellitus is an autoimmune disease determined by a combination of genetic and environmental factors ⁽¹⁾.

Early exclusive or partial non-breast milk feeding may increase risk among genetically susceptible children by providing early exposure to foreign protein or other offensive agent or by depriving children of adequate exposure to the complex immune activity of human milk that may protect them from exposures and processes that result in chronic diseases. Infancy, particularly early infancy, is a time of rapid growth and development in which certain periods may be critical for later health ⁽²⁾.

Antibodies to a single peptide fragment through to cross-react with receptors on the pancreatic B-cell surface because the ABBOS fragment is structurally homologous with Top 69 epitope on islet cell antigens. Support for this theory comes from animal studies that have found early cow's milk exposure to be a trigger for development of IDDM in genetically susceptible rats and mice ^{(7),(2)}.

The present study aimed to Identify the association between infant feeding practices and insulin – dependent diabetes mellitus (IDDM).

Methodology

The study was conducted at the National Center of Diabetes in Baghdad City the Capital of Iraq during the period or January 2001 to January 2002.

The researcher ought to select this center for conducting the present study due to the main following reasons:

1. It is the main center in Iraq.
2. It serves a large number of citizens.
3. It is provided with facilities that may easier to do such as studies.

A purposive sample of (200) child of (IDDM) was selected from the National Diabetes Center in Baghdad City.

The sample included all mothers of diabetic children who were visited this center at the time of this study.

In t order to achieve the objective of the present study. the researcher constructed a questionnaire that was used as mean of data collection. It was comprised of demographic information such as child sex, child age, duration of breast feeding, child's feeding pattern and socio-economic level which was determined through the following variables (1) parents level of education(2) parent's occupation (3) pre capti monthly income and (4) the residential area.

Reliability of the instrument was determination through use of person correlation coefficient for the test-retest approach was (0.87) and the instrument validity was determined through content validity which was determined by a panel of expert in different setting such as nursing , statistics, and community health medicine.

Results

Table (1): Demographic characteristics of the samples

Variables	Number	Percentage
(A) Child's Age / year	No.	%
5 – 6	33	16.5
7 – 8	29	14.5
9 – 10	35	17.5
11 – 12	103	51.5
Total	200	100
(B) Child's sex	No.	%
Male	130	65
Female	70	35
Total	200	100
(C) Socio – economic levels	No.	%
Low	69	34.5
Middle	67	33.5
High	64	32
Total	200	100
(D) Infant's feeding practices	No.	%
Breast feeding	23	11.5
Bottle feeding	164	82
Mixed feeding	13	6.5
Total	200	100
(E) Age / month	No.	%
1 – 3	17	74
4 – 6	4	17.3
7 – 9	2	8.7
Total	23	100

Concerning child's age within the sample the majority of the diabetic children (11-12) years old accounted for 51.5% of the sample and the lowest present 14.5% within age of (7-8) years old

Relative to child's sex the study revealed that the highest percentage (65%) of diabetic children are male , but the lowest percentage (35%) are female children .

In regard to the socio – economic level of sample shared in these study , finding revealed that (34.5%) of diabetic children are from the low socio –economic level , (33.5%) from middle Socio – economic level , and (32%)from the high socio – economic level .

Relative to infant's feeding practices , the study had shown that the highest percentage of diabetic children was fed artificially (88.5%) but lowest of them was fed by breast milk (11.5%)

Concerning to the duration of breast – feeding among diabetic children the study revealed that the highest percentage (74%) was continued breast – feeding for (1-3) months , and the lowest percentage , (8.7%) was continued breast – feeding for (7-9) month

Table (2): The Association Between Infant's Feeding Practices and (IDDM)

Infant feeding Practices	Breast Feeding	Bottle Feeding	Mixed Feeding	Total
IDDM				
Type 1	18	84	10	112
Type 2	5	80	3	88
Total	23	164	13	200
x ² obs = 11.6 x ² Crit = 10.4 P ≤ 0.05 df=2				

This table indicated that there were significant statistical association between infant's feeding practices and (IDDM) .

Discussion

Concerning child's age within the sample, the majority of the diabetic children for (t (11-12) years old which accounted for (51.5%) of the sample and the lowest present (14.5%) within the age of (7-8) year old.

Such finding was supported during a study that conducted at the National Diabetes Center in the College of Medicine, AI-Mustansirya University⁽¹⁰⁾, the study revealed that the highest percentage (44%) of Diabetic children within the age of (11-12) years old but the lowest percentage (15%) within the age group of (7-8) years old (table 1 . A) .

Individual studies showed that the association between infant feeding practices and IDDM varied with age. For children aged (7-14) years at diagnosis, the odd as ratio was (1.59) (range 1.08-2.33). (15) . For those diagnosis before age (7-14) the Odd Ratio was (2.78) (range 1.08-7.14) (14).Before age 6, the OR was (1.7) (range 1.02-2.89). (3) and before age 4, the Odd Ratio was (3.81) (range 1.KM3.29).⁽⁶⁾

The finding of the present study revealed that the highest percentage (65%) of diabetic children are male, but the lowest percentage (35%) are female children, (table 1. B) .

The support for these findings were found in a study at the National Diabetes Center, that study results Indicated that the incidence of diabetes among male children (60%) was high than those in a Female children (40%)⁽¹⁰⁾.

In regard to the socio-economic level of Sample shared in the6 study, findings revealed that there was no actual differences of the incidence of IDDM among children relative to their socio-economic levels, low (34.5%), middle (33.5%) and high (32%). (table 1. C) .

The socio - economic level was determined by the following factors :-

1. Family monthly income
2. Parent's occupation
3. Residential Area
4. Parent's Educational level .

In a case control study found that an association between artificial feeding and IDDM, they mentioned that children who didn't breast feed for at least 3 months has approximately (2.5) times the risk of breast fed children⁽⁴⁾.

Additional support was found in the study of 12 countries (1900). Findings of these study revealed that there was association between high daily cow's milk consumption and high incidence of IDDM ($r=0.86$, $p<0.01$)⁽¹³⁾.

The meta-analysis that examined an update set of studies in 1996 found that the diabetes mellitus was highly incidence among children of artificial feeding but low incidence among breast fed children⁽⁹⁾.

Another study using data from childhood diabetes registries in 12 countries with complete a scertainment of cases less than the age of 15 years, found a high correlation between IDDM and high daily bovine milk consumption ($r=0.96$)⁽⁵⁾.

Reported that the association of artificial feeding and the incidence of IDDM was due to the exposure of large foreign proteins before gut closure, before the development of oral tolerance, and before immune system maturation⁽⁸⁾.

The Study concluded that The diabetes mellitus was highly incidence among children of artificial feeding and low incidence among children of breast feeding. , the incidence of IDDM was high percentage among Male children than those in female children. and the relationship between the incidence of IDDM and the socio-economic level are not clear.

Recommendations

The present study make issue for the following recommendations:

1. Pediatricians should strongly endorse breast feeding as the primary source of infant nutrition.
2. In families with a strong history of IDDM, particularly if a sibling has diabetes, breast feeding and avoidance of commercially available cow's milk and products containing intact cow's milk protein during the first year of life are strongly encouraged.
3. A nutrition education message can be forwarded to mothers of diabetic children through mass media direct program.

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