Is Primary Prevention of Childhood Obesity by Education at 13-month Immunisations Feasible and Acceptable? Results from a General Practice Based Pilot Study

Abstract

Prevalence of childhood overweight and obesity remains high in Ireland. In this study we examined the feasibility and acceptability of an educational intervention specific to parents before their toddler's 13-month immunisations with the general practitioner (GP), including measuring weight of the toddler and parental education regarding healthy nutrition and physical activity for their toddler. There was a telephone follow-up interview with parents three months later assessing change in toddler diet/lifestyle. Endpoints assessed included parents' reports of specific lifestyle parameters with regard to the toddler and parental assessment of the usefulness of the intervention. 39 toddlers were studied. Most lifestyle parameters had improved at follow up. Reported fruit and vegetable intake of more than 4 portions per day increased from 20.5% of toddlers at baseline to 28.6% at follow up. The number of toddlers abstaining from unhealthy snacks increased from 15.4% to 21.4%. TV viewing of more than 2 hours daily decreased from 12.8% to 0%. Supervised exercise of more than thirty minutes per day increased from 69.2% to 89.3%. The majority of parents reported at follow up that they found the intervention acceptable (100%, n = 28) and useful (79%, n = 22).

Introduction

Over 20% of children aged between two and four years old in Ireland are overweight or obese at school entry.1 The pre-school period is an important time when children learn much about food, they also frequently attend their GP, which may provide opportunities for the primary prevention of obesity. Modification of parental perceptions known to be associated with obesity-promoting behaviours may be a possible obesity prevention strategy. Early community-based interventions have been shown to be effective in reducing body mass index (BMI) at two years.2 It is known that individuals who become overweight as toddlers and children experience higher levels of morbidity and excess mortality in adult life. The aim of this pilot study was to determine if it is acceptable and feasible to prevent childhood obesity by an educational intervention with parents at the time of 13 month vaccines. It is the first pilot study to our knowledge to examine the effectiveness of this intervention.

Methods

Parents and children attending for 13 month vaccination were invited to participate in the study in the waiting room notice, provision of an information sheet and verbal invitation by the GP (Sept-Dec 2012). All consecutive parents were invited to participate. Parents were provided with a baseline survey. Questions were asked by the GP due to possible literacy issues. This survey included questions on the child's eating habits, fruit and vegetable intake, snack intake and consumption of fizzy drinks and fruit juices, several of which were taken from The Healthy Beginnings Childhood Development Survey.3 The data was subjected to a pilot phase and results are included. Ethical approval was obtained from the TCD HSE GP Training Scheme Ethics Committee. The study was conducted in two urban practices in Dublin. Practice 1 (i.e. most deprived) and Practice 2 (i.e. least deprived) located in contrasting socioeconomic areas. Practice 1 has a deprivation index of 10 (most deprived), whereas, Practice 2 has a deprivation index of 7. Parents were asked about the age of their leaving full-time education as an indicator of deprivation. The child's weight was measured at initial contact by the GP and plotted on the UK-WHO 0-4 centile charts.4 This methodology was subjected to a pilot phase, and results are included. Ethical approval was obtained from the TCD HSE GP Training Scheme Ethics Committee. The study was conducted in two urban practices in Dublin. Practice 1 (i.e. most deprived) and Practice 2 (i.e. least deprived) located in contrasting socioeconomic areas. Practice 1 has a deprivation index of 10 (most deprived), whereas, Practice 2 has a deprivation index of 7. Parents were asked about the age of their leaving full-time education as an indicator of deprivation. The child's weight was measured at initial contact by the GP and plotted on the UK-WHO 0-4 centile charts.4 This methodology was subjected to a pilot phase, and results are included. Ethical approval was obtained from the TCD HSE GP Training Scheme Ethics Committee.

Results

A total of 39 parent and child dyads were included at baseline, with attrition to 28 at follow up. Reasons for loss to follow up included inability to contact parents after three attempts, and relocation of the families. The average age of the child at baseline was 13 months. All children were otherwise healthy. A total of 51% of parents were eligible for child care under the Primary Care Reimbursement Services (public patients). In Practice 1 (i.e. most deprived), average parental school leaving age was 16 yrs; in Practice 2 (i.e. least deprived) it was 22 yrs. At baseline, 26% of children were above 91st centile for weight with 10% of those being above the 98th centile. 51% of children were breast fed at birth: 10% of public patients and 85% of private patients (see Table 1).

Parental Perceptions of Overweight in Toddlers

90% of parents indicated they believe that it is possible for toddlers to be overweight. 28% indicated that weight is not an important issue with toddlers. 77% of parents reported that they never worry about their child's weight. Of those reporting worry, 20% worry that their child is underweight while 3% worry that their child is overweight; 90% of those parents of overweight children did not worry about their child's weight. All participants surveyed reported that it was acceptable for their GP to raise the link between healthy eating and weight in their child. 72% reported that they were given healthy eating advice for their child from the health service, 86% of these from Public Health Nurse (PHN). 95% from community groups, 3% from both PHN and community groups. No participant reported to receiving previous advice from their GP. 31% reported receiving advice about healthy activity for their toddler, all from their PHN.

Parental Feedback

Parental feedback was elicited using a rating scale from 1 to 5 where 1 was not useful and 5 was very useful. 75% of parents reported that a GP led discussion on healthy eating was useful or very useful, rating the discussion at 4 or 5. We asked parents to rate the information sheet we used in consultation on the same scale; 66% of parents positively rated it as 4 or 5. We asked parents if the advice encouraged them to improve their child's health and 64% agreed it had done so, while 11% disagreed.

Discussion

The majority of childhood obesity prevention programmes are focused on school-aged children.5 This is the first Irish study, to our knowledge, to examine the effects of educating parents about childhood nutrition at the time of 13 month vaccinations. While the sample of Irish toddlers in an area with a known high level of childhood obesity is small, it substantially extends current research interest as a possible target for prevention. In addition, there are many research papers addressing GPs attitudes and barriers to childhood prevention, but few GP-led childhood obesity prevention strategies. GP reluctance to engage systematically in this area of care has historically related to their concerns regarding causing upset to parents and children. A recent Irish study reaffirms these concerns among Irish GPs, but among a large sample of
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A systematic approach to addressing childhood obesity by GPs is required. Repeated studies have shown that parents fail to recognize that their child is overweight.\(^1\) High attendance rates in the pre school period by obese families are rare, and an unsolicited opportunity to assist such families by earlier identification of childhood overweight, and to begin to manage the problem as a family issue in a supportive and consistent manner. In our study, 90% of parents believe that toddlers can be overweight but 77% report never worrying about their child's weight. More concerning, 90% of parents of overweight children did not worry about their child's weight. In one previous Irish study 81.8% of overweight children were perceived to be a normal weight by their parents.\(^2\) Given that parents are poor at recognizing that their child is overweight, their GP is arguably well placed to assist in reliably identifying childhood overweight and providing suitable and acceptable advice. In this study however, no parents recollected previous advice from their GP. Our study was able to easily avail of the opportunity inherent in a planned vaccination visit at 13 months, which has a national attendance rate of over 90%. We believe the results demonstrate that this is a feasible and ideal opportunity to screen for overweight and to conduct a short intervention.

The current intervention was possible to achieve within a planned consultation. It took approximately 2-3 minutes to discuss the handout with parents, and to plot the child's weight on a centile chart. This can be easily carried out with relatively minimal additional resources, and the handout was acceptable (95%). Parents found the discussion on healthy nutrition and the lifestyle information sheet as very useful. There were differences in results between the practices. In the more deprived Practice 1, 26% of toddlers were watching more than 2 hours of television per day compared to none in Practice 2. We found that self reported lifestyle parameters improved more significantly in Practice 1. The usefulness of the discussion on healthy eating was given a higher average rating in Practice 1 than in Practice 2; 100% rated the discussion very useful in Practice 1 whereas 53% rated it very useful in Practice 2. Many parents in Practice 1 reported that they were already aware of the healthy eating and activity advice that we gave and therefore they did not believe it to be the focus. Previous studies have indicated that a measure of weight at 5 years of age provides a good indication of future health. A recent study evaluating the incidence of childhood obesity in the United States found that overweight 5-year-olds were four times as likely as their normal-weight children to become obese with a 9-year cumulative incidence of 31.8% vs. 7.9%.\(^3\) Other research has found that overweight or obese children who were obese as adults had increased risk of hypertension, hypertriglyceridemia and dyslipidaemia. The risks of these outcomes among overweight or obese children who became non-obese by adulthood were similar to those among persons who were never obese. Given these consequences of childhood obesity, the preschool period appears to be the optimum time for intervention.

In conclusion, these results indicate that educational intervention and review of toddler nutrition and healthy activity at the time of 13 month vaccines is both feasible for GPs and acceptable to parents. This intervention (checking weight and short educational intervention) appears practical in the context of general practice consulting. Parents involved reported it to be a useful intervention. Results indicate marked improvement reported in key behaviours and lifestyle parameters. These were most evident in the practice with a lower school leaving age among parents. A larger study utilizing this methodology is planned, with a view to acquiring a more representative sample, and to evaluate efficacy of the intervention in terms of reducing the proportion of children who are overweight.

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References
6. www.nhslive.org.uk

Parents concurrently studied, whose children had been systematically weighed, 98.6% indicated they found unsolicited weighing, while attending for unrelated health issues to have been helpful. In our study there was no reluctance to weighing toddlers.
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