BUDGET IMPACT OF MANAGING COW MILK ALLERGY IN AUSTRALIA

INTRODUCTION

Cow milk allergy (CMA) is an adverse reaction to protein in cow’s milk involving the immune system, with an estimated incidence of 2-3% in western industrialised countries [1-4]. This equates to 6,150 newly-diagnosed infants in Australia per year.

Symptoms of CMA generally appear within the first few months of life. An infant can experience symptoms immediately or up to seven days after milk ingestion [2-4]. There are three types of allergic reactions to cow’s milk:

1. Quick onset (immediate) in which infants develop symptoms within minutes to one hour after ingestion of small volumes of cow’s milk. These are typically IgE-mediated reactions. Symptoms may include urticaria, eczema, facial swelling, vomiting, diarrhea and wheeze. Severe reactions may result in anaphylaxis.

2. Slow onset (delayed) in which infants develop vomiting or diarrhea several hours after ingestion of moderate amounts of cow’s milk. Late onset in which infants develop eczema, vomiting, bloody stools, colic, diarrhea or irritability—after 24 hours, or up to several days after ingestion of normal volumes of cow’s milk. These are generally T-cell mediated reactions. Most children will outgrow this form of allergy by 2 years of age.

3. Breast-fed infants who are being breast-fed are advised to eliminate dairy products from their diet under the close supervision of a dietitian. Clinical nutrition preparations for bottle-fed infants with CMA include soy-based milk, extensively hydrolysed formulas (eHF) and amino acid formulas (AAF), such as Neocate, which is a complete hypoallergenic infant formula.

RESULTS

All affected infants are initially seen by their GP. Using information obtained from the published literature (7) and clinician interviews, it was estimated that GPs refer 50% of their CMA infants to a paediatrician, 32% to a paediatric gastroenterologist and 17% to a paediatric immunologist/allergist. Additionally, paediatricians subsequently refer 10% of their CMA referrals to a paediatric gastroenterologist (20%) and a paediatric immunologist/allergist (20%).

Most breast-fed infants would continue to be breast-fed, although their mothers would be placed on a cow milk elimination diet. In some instances the infant would have their diet supplemented with eHF or AAF. The initial diet for bottle-fed infants is summarised in Figure 1.

It was assumed that 9% of patients would be intolerant to soy and 29% would be intolerant to eHF, based on an epidemiological study we have undertaken among 1,000 children with CMA in the community in the UK [5].

CMA sufferers are intolerant to soy have an 80% and 20% chance of being switched to an eHF and an AAF respectively by paediatricians. In contrast, paediatric gastroenterologists would generally switch all patients who are intolerant to soy to an eHF whereas paediatric immunologists and allergists would generally switch 85% of patients to an eHF and 15% to an AAF. All clinicians would switch patients to an eHF if they are intolerant to eHF.

The six-monthly healthcare cost involving the initial specialist visit is $8,500, the symptomatic drugs are $2,500, the dietitian visit is $1,500 and the total six-monthly cost per CMA infant follows initial referral to a specialist is $12,500 (Figure 2).

All patients with suspected eosinophilic oesophagitis or failure to thrive are initially referred to a paediatric gastroenterologist by their GP and all patients are initially treated with an AAF (the AAF scenario), then the six-month cost of managing 6,150 newly-diagnosed infants with CMA following referral to a specialist was estimated to be $4.5 million, of which the cost of clinical nutrition preparations was found to be the primary cost driver (Figure 3).

Clinicians would switch patients to an AAF, whereas paediatric immunologists/allergists would switch patients to an eHF, whereas paediatric gastroenterologists would switch patients to an eHF if patients were intolerant to eHF.

The six-monthly healthcare cost involving the initial specialist visit is $10,000, the symptomatic drugs are $500, the dietitian visit is $1,500 and the total six-monthly cost per CMA infant following referral to a specialist is $12,500 (Figure 4).

CONCLUSION

Using an AAF as the initial treatment for CMA can potentially reduce clinical practice costs for alternative use within the Australian paediatric healthcare system.

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REFERENCES