

Atopic Dermatitis in Italian Children: Evaluation of Its Economic Impact

Giampaolo Ricci, MD, Barbara Bendandi, MD,
Laura Pagliara, MD, Annalisa Patrizi, MD, &
Massimo Masi, MD

ABSTRACT

Introduction: The aim of our study was to evaluate the economic impact of atopic dermatitis (AD) on the family of young children affected by the disease in Italy.

Methods: Thirty-three families of young children affected by AD were asked to fill in a questionnaire about financial costs associated with providing health care during the past year for their child affected by AD. For each child AD severity was evaluated by using the SCORAD index.

Results: By analyzing the questionnaire, an annual average cost of 1254€ (about U.S. \$1540) for each family was determined. Main expenses concern the use of moisturizing therapies, particular detergent, and private specialist consultations. Annual family average cost was lower for children with mild AD compared with those with moderate to severe AD.

Discussion: AD has a deep impact on the family budget, with an increasing cost in proportion to the increasing severity of the disease. These data support previous reports suggesting that the management of AD in children is complex and costly, altering the quality of life of children and their families. *J Pediatr Health Care.* (2006) 20, 311-315.

Giampaolo Ricci, Department of Pediatrics, University of Bologna, Italy

Barbara Bendandi, Department of Pediatrics, University of Bologna, Italy

Laura Pagliara, Department of Pediatrics, University of Bologna, Italy

Annalisa Patrizi, Department of Clinical and Experimental Medicine, Division of Dermatology, University of Bologna, Italy

Massimo Masi, Department of Pediatrics, University of Bologna, Italy

Reprint requests: Giampaolo Ricci, Department of Pediatrics, Via Massarenti, 11, 40138 Bologna, Italy; e-mail: ricci@med.unibo.it.

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Atopic dermatitis (AD) is a common chronic relapsing inflammatory skin disease that typically begins in the first years of life. AD has an estimated incidence of 10% to 15% in the pediatric population younger than 5 years, with a substantial increase in prevalence during the past decade (Hanifin, 2002).

The chronic course of AD is a serious problem for affected children and their families.

Because AD is a condition provoking extreme itching with continuous scratching that often maintains or exacerbates the skin inflammation, the behavioral component of the disease is especially problematic, with an important role in altering the quality of life of children and their family (Hanifin, 2002; Howlett, 1999; Lewis-Jones, Finlay, & Dykes, 2001). Moreover, various studies assessing the economic impact of AD on the family have shown that it represents a notable economic burden on the family budget. These cost studies on AD carried out in Australia, the United States, the Netherlands, and the United Kingdom support these findings (Ellis et al., 2002; Emerson, Williams, & Allen, 2001; Jenner, Campbell, & Marks, 2004; Kemp, 1999; Su, Kemp, Varigos, & Nolan, 1997; Verboom et al., 2002). An American study published in 1993 reported emergency room visits and ambulatory care billing records of a hospital and calculated the direct costs to the United States to be \$364 million annually (Lapidus, Schwarz, & Honig, 1993). However, the effective cost of AD was probably underestimated because only emergency department and physician visits were calculated. Another American review written by Ellis et al. reported that the direct cost of AD in the United States amounted to \$900 million, but they did not calculate indirect costs, and the

study also included adults. Also, a German study published in 2005 (Ehlken et al., 2005) obtained similar data with average annual total costs of 1425€ (U.S. \$1740) per patient, increasing with severity from 956 (U.S. \$1167) (mild) to 2068€ (U.S. \$2525) (severe). The German study also evaluated that the average direct medical costs of a disease flare were 123€ per patient.

To the best of our knowledge, no similar study has been performed in Italy. Our aim was to evaluate the financial cost of caring for young children affected by AD of varying severity in Italy.

PATIENTS AND METHODS

Thirty-three children (21 boys and 12 girls) aged from 12 months to 9 years (mean age, 34 months) who had been referred consecu-

tively to our Allergy and Immunology Pediatric Department between March and May 2003 were sequentially selected. All were affected by AD in accordance with the Hanifin and Rajka diagnostic criteria (Hanifin & Rajka, 1980). For each child, AD severity was evaluated using the SCORAD index (Kunz et al., 1997). This cumulative index combines objective (extent and intensity of lesions) and subjective (daytime pruritus and sleep loss) criteria. The assessment was always made by the same clinician. AD was considered mild when the SCORAD index was less than 20, moderate when it was greater than 20, and severe when greater than 40.

After physical clinical examination, the families or guardians of these children were asked to fill

out a questionnaire about how much they had spent on health care and assistance for their child related to AD during the past year. Clinical examination and follow-up were made in our Allergy Department where the children were brought for their specialist examination. The questionnaire was self-administered by the parents or guardians after it was explained by a clinician from the allergology department. Oral consent was asked before the questionnaire compilation. The questionnaire was anonymous; it reported only the age of the child and the severity of the disease as evaluated by the clinician in the physical examination. The questionnaire was filled out directly in the department shortly after the clinical examination.

The questionnaire was de-

signed by the authors and had not yet been tested for validity or reliability. The questionnaire consisted of 10 questions with these summarized items: (a) number of consultations for AD during the past year (either at the public hospital or privately); (b) average consumption of antihistamine; (c) topical steroids and/or antibacterial drugs (either as prescription or over-the-counter); (d) use of moisturizing therapy; (e) use of particular detergents (parents were asked to specify the name, the cost, and the average monthly use of the product); (f) use of food products different from those belonging to a standard diet (e.g., special milk and biscuits), with information about the name of the products, the cost, and quantity used in one month; (g) use of al-

ternative therapies (such as homeopathy); (h) use of home care behavior (e.g., special mattress cover and special clothes); and (i) non-attendance at work to assist the child affected by AD. Finally, an open question was included to specify any further expenses, other than those mentioned, for the care of their children affected by AD.

The costs of the products used by the families were checked on the price lists of the different companies.

RESULTS

Of the 33 examined children, 5 (15%) had a mild AD, 20 (61%) had moderate AD, and 8 (24%) had severe AD.

Statistical analysis of the questionnaires showed an average annual cost of €1254 (about U.S. \$1540) for each family, ranging from €164 (U.S. \$200) to €4009 (U.S. \$4902). As reported in the Figure, the main expenses concern the use of moisturizing therapies, with a mean cost of €487 (U.S. \$598), corresponding to 39% of the total, and the use of particular detergents, with a mean cost of €285 (U.S. \$350), corresponding to 23% of the total. An average of €154 (12%, U.S. \$189) was spent on private specialist consultations (but it is important to underline that 60% of the consultations was paid by the National Health Service [NHS], and the cost borne by the government was excluded from this study). The mean expenses for the use of antihistamine drugs and topical steroids represent 3% and 2.5%, respectively, of the total, with a mean respective cost of €39 (U.S. \$47) and €32 (U.S. \$39). Home care represented 4% of the total cost.

As reported in the Table, the average annual cost for a family was €694 (U.S. \$853) in children with mild AD, €1172 (U.S. \$1440) in children with moderate AD, and €1809 (U.S. \$2224) in those with severe AD. In the group of children with mild AD, 70% of the total

Children with moderate and severe AD frequently need a special diet, resulting in a great increase in the family budget.

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