Early-onset childhood vitiligo is associated with a more extensive and progressive course

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Objectives: Vitiligo commonly presents in children, with half of all cases developing before 20 years of age. Although studies have characterized differences between pediatric and adult vitiligo, little is known about vitiligo presenting in early childhood. The purpose of this study was to compare clinical features of early-onset (<3 years old) and later-onset (3-18 years old) childhood vitiligo.

Methods: This retrospective case series examined patients given a diagnosis of vitiligo in a pediatric dermatology practice at an academic medical center from 1990 to 2014. Characteristics of the early- and later-onset groups were compared by χ² and t test for categorical and continuous variables, respectively.

Results: Of the 208 children in the study, 31 had early-onset and 177 had later-onset disease. Early-onset vitiligo was associated with higher percentages of body surface area involvement and increased rates of disease progression during an average 1.9 years of follow-up. There were no significant differences between the 2 groups in repigmentation, vitiligo type, halo nevi, gender ratio, or personal and family history of autoimmune diseases.

Limitations: This was a retrospective, single-institution study.

Conclusion: Patients given a diagnosis of vitiligo at younger ages tend to have more extensive and progressive disease. (J Am Acad Dermatol http://dx.doi.org/10.1016/j.jaad.2015.05.038.)

Key words: halo nevus; pediatrics; pigmentation disorder; vitiligo.

Vitiligo is a common acquired disorder with a prevalence of 1% to 2% worldwide. Approximately half of patients with vitiligo present before 20 years of age, and a quarter before 10 years of age. Although adult- and childhood-onset vitiligo share similar features, a few key differences have been identified. Compared with their adult counterparts, pediatric patients with vitiligo have a higher proportion of segmental vitiligo and lower rates of associated autoimmune diseases. Little is known about the characteristics of vitiligo presenting in early childhood (<3 years of age). The aim of this study was to provide a clinical comparison between early-onset (<3 years of age) and later-onset (3-18 years of age) childhood vitiligo.

METHODS

This was a retrospective chart review of pediatric patients evaluated for vitiligo at the dermatology faculty group practice in the Ronald O. Perelman Department of Dermatology, New York University School of Medicine, from January 1, 1990, to November 15, 2014, inclusive. Children who first developed lesions before 3 years of age were included in the early-onset childhood vitiligo group, whereas those with onset at 3 to 18 years of age were included in the later-onset childhood vitiligo group. The history gathered for each patient included age at diagnosis, age at presentation, age at last visit, gender, vitiligo type, presence of halo nevi, medical history, treatments, family history, repigmentation, progression, estimated gestation age, birthweight, and body
and generalized (bilateral macules). Disease progression was defined as the development of new depigmented patches or extension of older patches as assessed by objective examination of the patient compared with previously diagramed body surface involvement. Repigmentation was noted if new pigmentation in sites of previous vitiligo lesions was documented at follow-up visits. The follow-up duration was calculated using the number of months elapsed between the patient’s first and last recorded visits. This study was reviewed by the New York University School of Medicine Institutional Review Board (study number i14-01840).

**Statistical analysis**

Characteristics of early- and later-onset childhood vitiligo were compared by the χ² test for categorical variables and Student t test for continuous variables. Analyses were conducted in Intercooled Stata 11.0 for Mac (Stata Corp, College Station, TX). All tests were 2-sided. P values less than .05 were considered significant.

**RESULTS**

This study included 208 children evaluated over 24 years. Of these, 31 patients (15%) first developed vitiligo before 3 years of age (early onset) and 177 patients (85%) between 3 and 18 years of age (later onset) (Fig 1). The mean age of presentation was 6.2 years. The average follow-up duration was 1.9 years.

Children with early-onset vitiligo had a higher percentage of involved BSA (6.3% vs 2.6%, \(P = .003\)). Of note, 13% of patients with early-onset vitiligo compared with less than 1% of later-onset vitiligo had greater than 10% of BSA involvement (\(P < .001\)) (Table 1). In addition, 56% of patients with early-onset vitiligo developed new areas of vitiligo compared with 35% of those in the later-onset group (\(P = .039\)). Both groups had similar rates of repigmentation: 60% in the early-onset group and 56% in the later-onset group (\(P = .665\)). In all patients, 26% with segmental vitiligo versus 58% with other types of vitiligo experienced disease progression (\(P = .020\)). This difference was significant in the later-onset group (23% vs 40%, \(P = .027\)), but not in early-onset vitiligo (67% vs 42%, \(P = .194\)).

Associations between age of onset and vitiligo type were analyzed. In the early-onset group, 42% of patients had segmental vitiligo compared with 32% of the later-onset group (\(P = .331\)). Focal vitiligo was the most common type of vitiligo in both groups, seen in 42% of early-onset and 41% of later-onset vitiligo.

Patients with early-onset vitiligo reported a lower incidence of halo nevi. In the early-onset compared with later-onset group, 13% versus 29% had associated halo nevi, respectively (\(P = .064\)). Two patients had large congenital nevi, which developed haloes and secondary vitiligo. There was no significant difference in gender, as 52% of patients with early-onset and 51% with later-onset vitiligo were female (\(P = .937\)). The prevalence of autoimmune diseases did not vary widely between the 2 groups, with 3% of early-onset and 5% of later-onset group reporting a personal history (\(P = .744\)), and 29% of early-onset and 24% of later-onset vitiligo groups reporting familial autoimmune diseases (\(P = .586\)). Similar rates of eczema were observed between the 2 groups (32% early vs 27% later onset, \(P = .571\)).

In patients presenting with early-onset childhood vitiligo, the average estimated gestational age was 39 weeks, and the average birthweight was 3.23 kg (7 lb, 2 oz). Perinatal information was not available for the later-onset group.

Various treatments included topical steroids (including clobetasol and fluticasone), topical calcineurin inhibitors (including tacrolimus and pimecrolimus), light therapy (including excimer laser and narrowband ultraviolet B phototherapy), and complementary treatments (including poly podium leucotomos and gingko). Tacrolimus and pimecrolimus were used more often since the advent of these medications in 2001 and 2002, respectively.

**DISCUSSION**

Age has important clinical correlations with vitiligo, as demonstrated in studies comparing adult and pediatric patients. To our knowledge, this is the largest series of patients with vitiligo presenting before 3 years of age, and no previous studies have used this subset as a comparison group. Analysis of