**Epidemiological, clinical and therapeutic profile of genodermatoses in Mali**

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**Abstract:**

Long considered as orphan diseases because of their poorly estimated frequency. Genodermatoses are more and more encountered in the world. They have been reported in all ethnic groups, including African blacks. In Mali, ethnic diversity and the frequency of consanguineous marriage justify the interest of this study. **Objectives:** To determine the prevalence of Genodermatoses in Mali, to describe their clinical and therapeutic aspects.

**Patients and Methods** It was a descriptive cross-sectional study of all cases of genodermatoses diagnosed and followed in the dermatology department of the CNAMduring the January 1fst to December 31, 2018, ie 4 years. **Outcomes** A total of 153 cases followed for Genodermatoses out of 4372 consulted were included in our study, ie an overall prevalence of 3,5%. Albinism accounted for 48.36% (74 patients), Congenital Ichthyosis 14.37% (22 patients), Hereditary Epidermolysis Bullosa 10.45 (16 patients), Neurofibromatosis 11.76% (18 patients), Xeroderma Pigmentosum 9, 16 % (14 patients), Incontinentia Pigmenti 5.88% (9 patients).Clinically, hyperpigmented macules, actinic keratoses, and photosensitivity were observed in Albino and Xeroderma Pigmatosum. Therapeutically, all our patients have received adequate care with regular follow-up. Oral antibiotics were reserved for cases of proven superinfection.Pigmented spots and actinic keratoses were treated by the application of liquid nitrogen. Sunscreen creams were routinely used in all albinos and Xeroderma Pigmentosumen. **Conclusion**: genodermatoses have the same clinical manifestations as those observed in Western countries, the prevalence seems to be different in sub-Saharan Africa favored by inbred marriage.

**Keywords:** Genodermatosis, Epidemiology, Clinical, Therapeutic, Mali

**Introduction**

Long regarded as orphan diseases because of their frequency, poorly estimated by the absence of multicenter epidemiological studies, Genodermatoses are more and more encountered in the world. They include a heterogeneous group of chronic, rare, disabling or even lethal diseases due to a genetic mutation **[1].**While some have an autosomal dominant inheritance such as Hereditary Bullous Epidermolysis (EBH), Incontinentia Pigmenti (IP), other Neurofibromatosis have an autosomal recessive inheritance such as Xeroderma Pigmentosum (XP), Oculocutaneous Albinism, Congenital Ichthyosis. Genodermatoses remain a major health problem and constitute a considerable burden, both for the child and for his family: disability and limited life expectancy **[1, 2].**Genodermatoses seem to be a cosmopolitan disease, they have been reported in all ethnic groups, including African blacks. In the world there are between 3,000 and 4,000 cases of Genodermatoses but there are still many unidentified patients **[2].**Their epidemiological profile differs from one entity to another and from one continent to another. Many studies have questioned the notion of parental consanguinity in children with these genodermatoses. Chronic diseases, most have a carcinogenic evolution. The diagnosis is essentially clinical based on careful clinical examination including interrogation and dermatological examination. Biology, histology and genetics, in addition to confirming the diagnosis, are of paramount importance in research.The treatment is generally symptomatic and the prevention of the appearance of cutaneous and precancerous lesions proves essential for the follow-up of these children. At present, etiological treatment is the subject of numerous studies **[1, 3, 4].**The heterogeneity of the clinical expression, the tumoral risks and the dangerous prognosis of this disease impose a regular follow-up of the subjects affected by these genodermatoses **[3, 5, 6].** In Mali, ethnic diversity and the frequency of consanguineous marriage justify the interest of the present study, whose purpose is to determine the prevalence of Genodermatoses, to describe their clinical and therapeutic aspects.

**Patients and Method**

Our study was conducted at the Dermatology Department of the National Center for Support to Disease Control (CNAM). Located in the heart of the capital Bamako, it is one of the reference structures of the country for the management of skin diseases with within it a unit for the care and monitoring of genetic diseases.This was a cross-sectional and descriptive study of all cases of Genodermatosis diagnosed and monitored in the CNAM Dermatology Department regardless of their age and sex during the period January 1fst to December 31, 2018, ie 4 years.

The free consent of all parents of children were obtained before their inclusion. The position of the patient to adhere or not to the study had no impact on the normal management of his pathology. The diagnosis was based on the clinic essentially.

Histology and biology have been performed for most of our patients. Sociodemographic, clinical and therapeutic variables were collected from a survey form. The processing and the statistical analysis of the data were carried out using the software EPI INFO 6.04 French version and the Seizures with the softwares Microsoft Word.

**Results**

A total of 153 cases followed for Genodermatoses out of 4372 consulted were included in our study, ie an overall prevalence of 3,5 %. Albinism accounted for 48.36% (74 patients), Congenital Ichthyosis 14.37% (22 patients), Hereditary Epidermolysis Bullosa 10.45% (16 patients), Neurofibromatosis 11.76% (18 patients), Xeroderma Pigmentosum 9, 16% (14 patients), Incontinentia Pigmenti 5.88% (9 patients)***Fig 1.***

Females accounted for 54.12% (83 patients) and males accounted for 44.88% (70 patients) and children 41.83%.*(Table1)*

The average age was 37.33 years with extremes ranging from 2 months to 66 years. Clinically, pigmented spots and actinic keratoses were observed in all Albino patients at some point during their regular follow-up. 6 Albinos presented ulcero-budding lesions in favor of histologically confirmed squamous cell carcinoma.In Xeroderma Pigmatosum, in addition to erythematous and pigmented macules diffused throughout the integument, photophobia was observed in more than 70% of patients**(Figure 3).** In the Incontinentia Pigmenti, stage 3 with these macular hyperpigmentations, of variable color, very specific disposition and distribution and following the lines of Blaschko was observed in 51.4% of cases, stage 4 with achromatic macular lesions, atrophic depigmented, alopecic, often linear in 32.1% of cases and stage 2 with verrucous, hyperkeratotic, sometimes hypertrophic and lichenoid lesions arranged blachko-linearly in 11.3% of cases and stage 1 with vesicular lesions linear tumblers in 6.2% of cases. Hereditary epidermolysis bullosa presented cyclical erythematous-vesiculobullous lesions and erosions of variable localization in 85% of cases. Histological examination classified these EBH cases as simple EBH in 62.4% of cases, Junctional EBH in 22.1% of cases and Dystrophic EBH in 16.5% of cases. For the cases of Neurofibromatosis, the spots Coffee with milk, Neurofibromas and Lentigine were found in all our patients and these lesions were localized with the Trunk 26,3% Lower member 23,7% Upper member 21,1%, Cephalic 18,4 % and Neck 10.5%.The bottom of the eye and the electroencephalogram were systematically requested in all our patients and these results were normal in 72.8% of cases. We did not have any cases of seizure. Hereditary Ichthyosis was clinically manifested by squamous lesions with thickening of the skin. Three (3) cases of erythroderma on erythrosis were observed.The concept of pruritus was observed in 76.32% of patients with Ichthyosis. Therapeutically, all our patients have received adequate care with regular follow-up. (***Table 1)***

Hereditary epidermolysis bullosa has received local care to prevent the risk of infection, to obtain a rapid regression of bubbles and erosions and finally to ensure the comfort of the child. These local treatments included a twice-daily bath with dermatological or antiseptic soaps, the use of topical antibiotics on erosive lesions. Oral antibiotics were reserved for cases of proven superinfection.Hereditary Ichthyoses were treated with emollients (Vaseline 5% urea, 10%) and Keratolytics (salicylic acid in petrolatum). For neurofibromatosis, the therapeutic abstention associated with the councils was of rule but some cases of neurofibromas of large sizes benefited from surgical removal.The albino pigmented spots and actinic keratoses were treated by the application of liquid nitrogen. Sunscreen creams were systematically used in all albinos in addition to advice on the importance of sartorial protection. The 6 cases of carcinoma were treated surgically.The sunscreen protection, the use of sunscreens, topical retinoids were recommended in Xeroderma Pigmentosum. Topical antibiotics (fucidic acid cream) were used on ulcerative-crustal lesions.

**Discussion**

Genodermatoses being a cosmopolitan disease, we reported an overall prevalence of 3,5 %. According to our study.This prevalence could be explained by the relative frequency of consanguineous marriage among different ethnic groups. It is consistent with the literature that the prevalence and incidence of these rare diseases are poorly determined, however some figures are available. In Northern Ireland, the incidence would be 1, 4/1000000 / year and prevalence of 32/1000000 **[7].**In Scotland, the prevalence would be greater 49/1000000 [8]. In the United States, more than 50000 cases of genodermatoses are known. The incidence would be 1/50000 births in Scandinavia and Croatia [9]. Oculocutaneous albinism and Xeroderma pigmentosum pose a major public health problem with their risk of early onset of skin and mucosal cancers. The prevalence of mucocutaneous cancers in this group is estimated at about 75%.The average age was 37.33 years and this could be explained by the high frequency of the albino population and patients with neurofibromatosis who consult at a young agefor unsightly lesions***(figure 4 and 5).***This result differs from the literature where Genodermatoses are more frequent in children, this literature did not take into account Albinism and Neurofibromatosis.As in previous studies, the clinical manifestations of the different genodermatoses remain the same. The only clinical peculiarity may be the rapid evolution of certain genodermatoses (Xeroderma Pigmentosum, Oculocutaneous Albinism) to cutaneous and mucosal cancers in developing and sunny countries such as Mali.Hereditary epidermolysis bullosa has received local care to prevent the risk of infection, to obtain a rapid regression of bubbles and erosions and finally to ensure the comfort of the child. These local treatments included a twice-daily bath with dermatological or antiseptic soaps, the use of topical antibiotics on erosive lesions. Oral antibiotics were reserved for cases of proven superinfection.This protocol of care is close to that of the CHU Saint André de Bordeaux.The albino pigmented spots and actinic keratoses were treated by the application of liquid nitrogen***(figure5).***Sunscreen creams were systematically used in all albinos in addition to advice on the importance of sartorial protection. This therapeutic method is comparable to that described in the literature [10, 11, 12]. Just like literature, surgery will remain the rule for the management of cutaneous cancers [8].

**Conclusion:** genodermatoses have the same clinical manifestations as those observed in Western countries but the prevalence seems to be different in sub-Saharan Africa favored by inbred marriage. A multinational study will be essential to determine the true prevalence of genodermatoses.

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