56.Identification of Bioactive Compounds from *Vernonia amygdalina* leaf and their Anti-allergic activity in patients with atopic/eczema dermatitis

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Objectives

Atopic dermatitis (AD), a relapsing skin disorder characterized by severe itching and impair- ment of quality of life, affects 10–20% of children and 3-5% of adults worldwide. *Vernonia amygdalina* (VAM) is a plant which leaf extracts have antioxidant, antitumor activities in experimental studies. We previously demonstrated that VAM extracts display anti-inflammatory effects in animal model of atopic dermatitis. The present study aimed to analyze the main chemical compounds from the leaf extracts and their anti-allergic effects in patients with AD and allergic contact dermatitis (ACD).

Methods

HPLC analysis of the aqueous (VAM1) and alcoholic (VAM2) extracts was performed in order to identify their main components. Gas chromatography mass spectrometry (GC-MS) showed lipid contents of each extract. A clinical trial was conducted that included 63 students suffering from mild to moderate AD or ACD. They were randomly assigned one of the following treatments: VAM1, VAM2, *dexamethasone* (steroid) or vaseline. The severity of the disease was evaluated using the "eczema area severity index" (EASI) scoring system. The evaluation of skin symptoms and signs was performed once a week for a total of four weeks. Hematological, immunological assays and markers of hepatic function (ALT, ASAT) assays were performed in representative patients. Signed informed consent were obtained from patients' parents.

Results

HPLC analysis showed that VAM1 mainly contains polyphenols (flavonoids), alkaloids and saponins; while VAM2 comprised terpenes and carotenoids. In addition, GC-MS analysis revealed that this species of VAM has different chemical composition as compared with the plant from the western and southern regions of Africa. VAM 1 mainly contains various inositols (87%); however, for VAM2, aliphatic acids such (as hexadecanoic acid, octadecanoic acid) represent 61%. Regarding anti-inflammatory compounds, the most active isolated terpene from the plant is *vernodalin* and, on the other side, the most active flavonoid is *dicaffeoyl- quinic acid*. Regarding the clinical trial, *dexamethasone*, VAM1 and VAM2 displayed a good anti-itch effect as compared with Vaseline ($p<0.001$, t test). In addition, the anti-itch effect of VAM2 was greater than that of *dexamethasone* ($p<0.05$). A marked improvement of EASI score was observed in *dexamethasone*, VAM1 and VAM2-treated patients (vs. Vaseline; $p<0.001$ by t test), with dexamethasone having a slightly higher proportion of patients clinically cured within five weeks of treatment (82%), followed by VAM2 (79%) and VAM1 (76%).

Conclusion

This is the very first conducted clinical study on VAM, which displayed an anti-allergic activity similar to that of *dexamethasone;* this suggests that VAM may possibly serve as alternative therapeutic agent for atopic/eczema dermatitis syndrome. Detailed results will be discussed during the research meeting.