



Figure 1 - Histological appearance of exposed maternal adrenalectomy. Loss of stratum reticulare was observed with decreasing collagen fiber. e - epidermis, ed - dermal adnexa, sc - subcutis, follicle piles (arrow). (Mason triple, original magnification x 10).

glucocorticoid hormones can suppress the growth of certain cancers and inhibit hyperplasia and neoplasia in a number of systems including several types of leukemia and lymphoma.⁶ The adrenal gland has been implicated as a mediator of the beneficial effects of dietary energy restriction in a number of studies.⁷ Adrenalectomy stimulated carcinogen-induced mammary tumor growth and the tumor-inhibitory effect of food restriction in skin carcinogenesis models were reversed by ADX.⁷

Our findings clearly show that ADX causes negative effects in the epidermis and thickening of each dermal layer, as well as the developing skin as a whole, in the puppy rat.

Received 8th February 2005. Accepted for publication in final form 5th March 2005.

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Treatment of vitiligo with topical 15% lactic acid solution in combination with ultra violet-A

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There are many topical therapies reported for treatment of vitiligo such as topical steroids, phototherapy, psoralen ultraviolet A (PUVA), topical iodine tincture 5%,¹ and topical calcipotriol, each has advantages and side effects, none are universally effective. Most recently, topical 15% lactic acid solution has been used successfully in treatment of vitiligo.¹ The present work has been arranged to evaluate topical 15% lactic acid solution with or without ultraviolet A (UVA) exposure.

This study included 46 patients with vitiligo. Seventeen patients completed the study, 14 were females and 3 were males. Their ages ranged between 3-30 years with a mean \pm SD of 17.29 \pm 6.64 years. All patients included in this study had localized vitiligo in the non exposed area with at least 4 patches. The study was carried out in the out patient Department of Dermatology and Venereology in Baghdad Teaching Hospital, Baghdad, Iraq, during the period between November 2001 to March 2003. The size of patches ranged between 0.25-46 cm² with a mean \pm SD of 6.48 \pm 10.52 cm². The out line of each patches was drawn on transparent paper, and the surface area measured with graph paper before treatment, and every 2 months for 6 months. The patches were divided to 4 groups randomly according to the type of treatment: Group I: was treated with topical 15% lactic acid solution. Group II: was treated with UVA. Group III: was treated with combination of 15% lactic acid solution and UVA. Group IV: control (treated by tap water). In each patient, some of the patches were treated by lactic acid and some

Table 1 - Response to treatment after 6 months.

Treatment	Grade 1 n (%)	Grade 2 n (%)	Grade 3 n (%)	Total n (%)
LA	6 (28.6)	4 (19)	11 (52.4)	21 (100)
UVA	7 (36.8)	9 (47.4)	3 (15.8)	19 (100)
LA+UVA	3 (11.1)	8 (29.6)	16 (59.3)	27 (100)
Total	16 (23.9)	21 (31.3)	30 (44.8)	67 (100)

p = 0.039. LA - lactic acid, UVA - ultraviolet A

treated by UVA, while others were treated by a combination of lactic acid solution and UVA and some patches treated by tap water. In the preparation of 15% lactic acid solution (Hopkin and Williams Ltd., England), which was diluted with tap water to have a final concentration of 15% and stored in air tight container and applied topically using cotton wood stick to affected patches, after 30 minutes of treatment, the area was then exposed to the UVA machine for 10 minutes twice weekly in a way to be localized taking in consideration that no other patches can be exposed to UVA. The UVA machine (Airam Finland) each one cm² of patches was exposed to 5 J. The response of therapy was evaluated according to the following scale: Grade 0: no response, Grade I: slight response, when there is quarter of size of patches or less showed repigmentation. Grade II: moderate response, when half of patches or less showed repigmentation. Grade III: marked response, when more than half of the patches showed repigmentation.

A total of 17 patients with vitiligo were seen. The treated patches in 17 patients totalled 67, while the remaining 31 patches were treated by tap water as a control. The therapeutic results with 2 months follow up were as follows: Group I: Twenty-one patches treated with topical 15% lactic acid solution. The mean size of patches before treatment was 4.53 ± 5.69 cm², this decreased to 2.01 ± 3.74 cm² after 6 months (*p* = 0.0005). Group II: Nineteen patches treated with exposure to UVA. The mean size of patches before treatment was 8.27 ± 12.98 cm², this decreased to 6.09 ± 10.33 cm² after 6 months (*p* = 0.002). Group III: Twenty-seven patches treated with topical 15% lactic acid plus UVA exposure. The mean size of patches before treatment was 6.74 ± 11.57 cm² this decreased to 4.80 ± 8.50 cm² after 6 months (*p* = 0.0005). Groups I, II, and III all showed repigmentation after 6 months of treatment as shown in Table 1. Group IV: Thirty-one patches treated with tap water (control), showed no response.

Alpha hydroxy acids have been used tremendously in the last years as peeling agents,² but in low concentration all these acids induce inflammation of skin. This inflammation could be similar to the inflammatory reaction induced by psoralen compound and ultraviolet light (UVL) through stimulation of keratinocytes to release inflammatory mediators such as basic fibroblast growth factor, interleukine-1, leukotriene C4 and E4, TGF- α (transforming growth factor alpha) and endothelin-1,³ thus stimulating proliferation of melanocytes and inducing repigmentation. It is unsure how this inflammation can induce repigmentation, but we can speculate that it could be similar to inflammation induced by psoralen and UVA through stimulation of keratinocyte mediators.

This observation was also noticed through treatment of vitiligo by 5% iodine tincture as it can induce the inflammation and repigmentation.¹ As there are free radicals in patients with vitiligo that can induce depigmentation, so lactic acid as antioxidant might share in the process of repigmentation.⁴ The effect of UVA can not be explained, but we can speculate that UVL accelerates the effect of lactic acid through release of cytokines similar to lactic acid and hence stimulates melanogenesis.⁵

The present work showed clearly that lactic acid combined with UVA exposure showed statistically significant improvement compared with lactic acid alone. These results indicate that combination therapy is more effective and advantageous than single therapy. The explanation of this exaggerated effects of combined therapy is not obvious, however, this outcome of therapy could be due to synergistic effects. This combined therapy could be applied using other topical therapy like iodine solution and UVA exposure. Other alpha hydroxy acids in low concentration can work similarly to lactic acid in inducing repigmentation of patients with vitiligo.

In conclusion, combination therapy of lactic acid solution and UVA is an effective mode of treatment and superior to a single mode of therapy.

Received 26th December 2004. Accepted for publication in final form 28th March 2005.

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Diabetes in Oman

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Diabetes mellitus (DM), as a well-known risk factor for coronary artery diseases (CAD), is a major public health dilemma worldwide generally and in Oman specifically. The prevalence of DM is increasing in Oman as in other Gulf countries.^{1,2} Its early signs could be detected as early as 7 years before its diagnosis. Nevertheless, impaired fasting glucose (IFG), namely, fasting blood glucose [FBG] = 6.1-6.9 mmol) could yield finally to DM unless preventive measures and changes in lifestyle are adopted. Moreover, IFG could be considered, as DM, a CAD risk factor. Therefore, early diagnosis of IFG and DM and registration of Omani diabetic patients in the Ministry of Health (MOH) facilities is crucial for their monitoring and follow up.

Albeit there is an increase in the crude number of registered DM patients and its percent of total population aged 20 and above from 2.39% in 1999 to 4.64% in 2003³, the pace of such increase could, with doubt, be viewed as satisfactory especially if the percentage of registered DM patients to total population aged 20 and above would be predicted in the year 2011 as 7.92% by linear regression equation. Three percent of the population aged 20 and above were registered as DM patients in 2000, whereas 4% of the same age group screened were caught as old DM patients (namely, aware of having DM) in the National health survey, 2000 (NHS, 2000).⁴ It denotes under-registration from one side and poor community awareness of DM on the other. Recent studies in the Kingdom of Saudi Arabia⁵ showed that only 27.9% of diabetics were unaware of their condition. Astonishingly, albeit the readily available access to health care facilities in the Sultanate of Oman, only one third of Omani diabetic subjects knew that they had diabetes.¹

Given the increasing prevalence of DM in Oman, the risk of changing from the IFG status to DM, and the relatively slow pace of DM patients registration, it would be unlikely in the near future (the next 5

years) to register all diabetic subjects. The percent registered by the end of the next Seventh 5-year Plan (2006-2010) is predicted to be near to 8%. Still at that time, the needs of one third, or even more, of Omani subjects would be unmet for management by 2010. Therefore, unmet needs for diabetes care, as well as other non communicable diseases, for example, hypertension and obesity should be tackled in the next Strategic Health Developmental Plan.

Unmet needs in diabetes actually do not stop at the level of diagnosis and registration, but it exceeds to cover investigating unmet needs for diabetes self-care knowledge and skills associated with patient-centered outcomes of diabetes self-care (namely, awareness of self-care components, and adherence to it). Furthermore, It also extends to cover the unmet needs for management of diabetic complications as renal replacement therapy (RRT) for diabetic subjects with end-stage renal failure (ESRF). Diabetic renal disease is a common complication and is the most prevalent cause of end stage renal disease (ESRD) in the western world.⁴ According to the ESRD program in the United States the number of existing patients with terminal renal insufficiency caused by diabetes more than tripled between 1990-2001.³ Unfortunately, our health information system does not include data on the prevalence of ESRF among diabetics or the causes of ESRF in subjects under RRT to project the demands for RRT of diabetic subjects with nephropathy. Such demand is expected to increase due to demographic transitions and the increasing prevalence of diabetes. Also, to mention the unmet needs for timely referral of diabetic subjects with any of the diabetes complications as renal impairment. Parmar⁶ concluded that an unexpected passive improvement in glycemic control of a patient with history of poorly controlled glucose concentrations should provoke the primary care physician to check for a recent decline in renal function.⁴

The primary risk factors for CAD are diabetes, hypertension, high cholesterol, overweight, cigarette smoking and physical inactivity. The first 4 of these risk factors may cluster in some persons and have been identified as components of a syndrome known as metabolic cardiovascular syndrome or the deadly quartet.⁶

The study subjects of the NHS, 2000 were divided into 5 groups according to having one or more of the 4 CAD risk factors, namely hypertension, high cholesterol, diabetes, overweight or obesity. **Table 1** shows that only 28% of the study subjects were free from the 4 CAD risk factors, namely, 72% of Omani adults aged 20 and above of both gender had at least one CAD risk factor.⁷ Approximately 35% had only one risk factor of the above mentioned 4. Approximately 25% of the