prolonged cardiopulmonary resuscitation [5] and obese men who received bariatric surgery [6], but it has never been associated with body massage. Senior and diabetic patients need to be warned that vigorous body massage may cause dangerous complications such as rhabdomyolysis. In addition, the people receiving body massage should drink adequate amount of water before and after the massage session so as to prevent unusual episodes of rhabdomyolysis-associated ARF, which is exacerbated by volume depletion [3,4].

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1Department of Medicine, Ming-Yu Lai1,2
Taipei Veterans General Hospital, Su-Pen Yang1,2
and 2National Yang-Ming, Pui-Ching Lee1
University School of Medicine, Shou-Dong Lee1,2
Taipei, Taiwan

1Address correspondence to: su-penyang@vghtpe.gov.tw


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Effect of ascorbic acid supplementation on plasma isoprostanes in haemodialysis patients

Sir,

We would like to report the effect of ascorbic acid (AA) supplementation on plasma F2-isoprostanes in haemodialysis patients with anaemia and hyperferritinaemia. The F2-isoprostanes, free-radical oxidation products of arachidonic acid, have been quantified in human models of increased oxidative stress [1], including haemodialysis patients [2], and are a useful measure of in vivo lipid peroxidative damage [3]. While AA supplementation may improve anaemia in haemodialysis patients with iron-overload and normal iron status [4,5], the effects on parameters of oxidative stress are conflicting. Studies have shown an extra-cellular pro-oxidant effect in vitro with bolus doses of AA [6], but intracellular anti-oxidant effects in vitro over 8 weeks of AA supplementation [7]. Recently, Fumeron and colleagues have demonstrated that there is no effect of short-term oral AA administration on oxidative stress markers [8]. As discussed in their paper, these paradoxical effects may relate to increased presence of catalytic transition metal ions such as iron and oxalate which favour pro-oxidant activity, AA doses used, whether AA was administered orally or intravenously (IV), and differing assays for Reactive Oxygen Species detection. We have extended the findings of Fumeron et al. by examining the effect of both oral and i.v. AA administration on plasma F2-isoprostanes and serum oxalate levels, as the latter may counteract the antioxidant effects of ascorbic acid.

In a sequential study, we randomly assigned 21 haemodialysis patients with mild anaemia (mean Hb 114 g/l ± SE 2.2) and hyperferritinaemia (mean ferritin 632.0 ug/l ± 59.4) to either 250 mg of oral (n = 10) or IV (n = 11) AA three times a week post-dialysis [9]. We measured plasma F2-isoprostanes before treatment with AA, after 8 weeks of AA and finally following a 4 week washout period. Plasma F2-isoprostanes were measured on EDTA plasma samples collected into cold tubes protected from in vitro oxidation by the addition of 20 μg of butylated hydroxytoluene, and assayed using a combination of silica and reverse-phase cartridges, high-performance liquid chromatography and gas chromatography mass spectrometry using electron capture negative ionization [10]. As previously reported [9], plasma ascorbic acid and serum oxalate levels increased significantly following treatment with oral and IV AA, and the increase was not significantly different between the two routes of administration. We did not observe a significant change in the plasma F2-isoprostane level with either oral or IV AA from baseline to week 8 [week 0: 1992.0 pmol/l (95% CI 1603.8–2472.3) vs 1908.4 pmol/l (95% CI 1473.9–2470.6), P = 0.60]. Additionally, plasma F2-isoprostane level was not statistically different after the washout period [week 8: 1908.4 pmol/l (95% CI (1473.9–2470.6) vs week 12: 1979.7 pmol/l (95% CI 1586.0–2471.3), P = 0.62]. Furthermore, the route of AA administration, IV or oral, had no effect on plasma F2-isoprostane level when adjusted for baseline values (P = 0.68).

We acknowledge that the lack of effect on oxidative stress may relate to the low dose of AA used, short duration of therapy and lack of co-administration with vitamin E. The lack of observed antioxidant activity with AA supplementation may also be due to the associated elevation in serum oxalate levels [11] and hyperferritinaemia, which are known to increase pro-oxidant activity. Finally, although we did not specifically measure for markers of inflammation, ferritin, a known acute-phase protein, was unchanged during the study period.

In summary, our study provides further supportive evidence that short-term treatment with either oral or IV AA has no effect on markers of oxidative stress despite an increase in plasma ascorbic acid levels.

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1Department of Nephrology Doris Chan
Royal Perth Hospital
Ashley Irish
2School of Medicine and Kevin D. Croft
Pharmacology and Western Garsharan Dogra
Australian Heart Research Institute
University of Western Australia, Perth
WA6001, Australia

Email: doehan@ausdoctors.net
Renal involvement in a patient with visceral leishmaniasis

Sir,

Human visceral leishmaniasis, a parasitic infection caused by the protozoan Leishmania and responsible for approximately 5000 deaths annually, is more frequently reported in immunocompromised individuals, such as HIV patients [1] and renal transplant recipients [2], and can rarely involve the kidneys, in the form of haematuria, proteinuria or renal function impairment. Herein, we report the case of a patient of good immunological status suffering from visceral leishmaniasis with severe, histologically confirmed renal involvement, where successful treatment of the disease resulted in improvement of renal function.

A 65-year-old Caucasian man, with an 8-year-long history of type 2 diabetes mellitus (under insulin treatment), was referred to our department because of pancytopenia (WBC 9000/mm³, haemoglobin 8.5 g/dl, platelets 80000/mm³) and renal failure (urea 184 mg/dl, serum creatinine 5 mg/dl). Clinically, hepatosplenomegaly was noted. Extensive viral serology was only positive for hepatitis B surface antigen, and immunological investigation was unremarkable. Ultrasonography revealed that the kidneys were normal in appearance and length (10.5 cm). Bone marrow aspiration and biopsy indicated the presence of phagocytes and monocyte fragments filled with leishmanias, as well as PAS-stain positive granules in the protoplasm of histiocytes. Serum antibodies against Leishmania infantum were found positive, confirming the diagnosis of chronic visceral leishmaniasis. The subsequent renal biopsy revealed chronic tubulointerstitial nephritis, arteriosclerosis, mild diabetic glomerulosclerosis and absence of the parasite. Immunohistochemical stains showed sparse IgM and C3d mesangial and IgG basement membrane depositions. The patient received treatment with liposomal amphotericin B (AmBisome®) and corticoids, gradually resulting in a significant improvement of renal function (creatinine: 2.5 mg/dl, urea: 110 mg/dl, proteinuria: 300 mg/24 h) within the first 10 days of therapy, and a later decrease in titre of the antibodies against Leishmania.

There have been reports of visceral leishmaniasis with involvement of almost all systems, however renal involvement is scarce and appears as glomerulonephritis or interstitial nephritis (or both) [3,4]. There are also significant indications, mainly derived from observations in animals [5,6], that involvement of both glomeruli and tubules results from immune complex deposition, the antigens of which belong to the parasites [6]. In addition to that, we attributed our patient’s interstitial nephritis to the systemic parasitic disease, because renal function improved while treating the infection and no other possible causes (e.g. drugs) could be found in the patient’s history. However, based on present serum immunology and immunohistochemical findings, we cannot be certain of the immune-mediated nature of the renal involvement, although it seems likely.

In conclusion, visceral leishmaniasis must be in the mind of the clinician treating a patient with constitutional symptoms, pancytopenia and renal involvement. Confirmation of a likely immune pathogenetic mechanism would facilitate treatment, but is still pending.

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1. Renal Department
2. The fourth Department of Internal Medicine
3. Pathology Laboratory
4. Hippokration Hospital

Greece

Email: efstrati@med.auth.gr