

Prevalence of Adenovirus 36 infection and association with obesity and diabetes in the United Arab Emirates

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Background

Prevalence of obesity and diabetes has increased significantly in the UAE over the last 40 years. Adenovirus 36 (Adv36) infection has been associated with obesity in several studies across different ethnic populations, and usually is associated with improved glucose tolerance.

Objective

- 1) Identify the prevalence of Adv36 seropositivity among adults living in the UAE.
- 2) Investigate the association of Adv36 infection with obesity and diabetes in this population.

Methods

Participants (N=973) were recruited from the outpatient facility of ICLDC, Abu Dhabi, UAE including patients with different weight and glucose tolerance categories. Height, weight, body composition, glycosylated haemoglobin (HbA1c) and lipid profile were measured at recruitment. Adv36 seropositivity was assessed using an ELISA (Obetech, Richmond, VA, USA). Differences between Adv36 seropositive and seronegative groups were analysed using ANCOVA or Mann Whitney U Test.

Results

Among the 973 subjects in the study, 458 (47%) were Adv36 seropositive and 515 (53%) were seronegative. Adv36 seropositivity rate in obese and non-obese was 42.5% v 49.6% (p=NS). In obese, type 2 diabetic subjects, Adv36 seropositives had a higher HbA1c ($p=0.003$) than seronegatives. Adv36 seropositivity was associated with a higher HDL ($p=0.031$) in obese subjects with impaired glucose tolerance, a higher LDL ($p=0.040$) and total cholesterol ($p=0.017$) in obese normoglycaemic subjects, and a lower LDL and total cholesterol in normoglycaemic normal weight subjects ($p=0.018$ and $p=0.039$, respectively).

Conclusion

Past infection with Adv36 is more prevalent in the UAE than in other countries but we did not confirm a difference between obese and lean subjects. Unlike prior studies in obese diabetic subjects, Adv36 seropositives had worse, not better, glucose tolerance. Lipid profiles differed in obese vs lean, diabetic vs non-diabetic Adv36 seropositive subjects. The spectrum of changes with Adv36 seropositivity appears unique in the UAE population compared to other countries.

