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Study of the relation between serum testosterone level and carotid atherosclerosis in elderly males

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Objective: The aim of this work is to evaluate the relationship between serum testosterone concentration and carotid atherosclerosis in elderly males.

Methods: The current study included 40 subjects who were classified into two groups; the first group included 30 elderly healthy males as the cases group and the second group included 10 young males as the control group. Serum level of total testosterone was measured using immunoassay kits, sex hormone binding globulin (SHBG) was measured using immunoassay kits and free androgen index (FAI) was calculated.

Results: Ultra-sonographic measurement of carotid intima-media thickness (IMT). Total testosterone level was significantly lower in the cases group than control group ($t=5.354$, $p<0.001$). SHBG was significantly higher in the cases group than the control group ($t=4.796$, $p<0.001$). Free androgen index (FAI) was significantly lower in cases group than control group ($z=4.686$, $p<0.001$). Intima-Media thickness (IMT) was significantly higher in the cases group than the control group ($t=3.513$, $p=0.001$). As regards the number of plaques 10 males from the cases group did not have any plaques, 13 males had one plaque and 7 males had two plaques however in the control group 9 males did not have any plaques and only one male, had one plaque, so cases group had significantly higher prevalence of plaques than the control group ($z=3.007$, $p=0.003$). A significant negative correlation between total testosterone and SHBG ($R=-0.856$, $P<0.001$), a significant positive correlation between total testosterone and FAI ($R=0.957$, $P<0.001$), and a significant negative correlation between testosterone and both IMT ($R=-0.501$, $P=0.005$) and number of plaques and ($R=-0.358$, $P=0.52$). SHBG was negatively correlated with FAI ($R=-0.845$, $P<0.001$) but it was positively correlated with both IMT ($R=0.392$, $P=0.353$) and number of plaques ($R=0.032$, $P=0.056$). There were significant negative correlations between FAI and both IMT ($R=-0.601$, $P<0.001$) and number of plaques ($R=-0.461$, $P=0.010$). IMT was positively correlated with the number of plaques ($R=0.760$, $P<0.001$).

Conclusion: These findings suggest that normal physiologic testosterone levels may help to protect men from the development of atherosclerosis. In elderly men, low plasma testosterone is associated with elevated carotid intima-media thickness. A negative correlation has been demonstrated between endogenous testosterone levels and IMT of the carotid arteries. These findings suggest that men with lower levels of endogenous testosterone may be at a higher risk of developing atherosclerosis.

Biography

Nany Hassan Abu Al-Makarim El Gayar is an Assistant Professor of Internal Medicine, Geriatrics Department at Alexandria University, Egypt. He has done MS in Rheumatology and MD in Geriatrics. He has published 10 papers in reputed journals.

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