Obesity may be an irreversible atherosclerotic endpoint in the human body

Mehmet Rami Helvaci[1], Esma Helvaci[1], Emine Helvaci[2], Yusuf Aydin[1], Leyla Yilmaz Aydin[3], Alper Sevinc[1], Celaletdin Camci[1]

1- Specialist of Internal Medicine, MD, Turkey
2- Manager of Writing and Statistics, Turkey
3- Specialist of Pulmonary Medicine, MD, Turkey

Correspondence
Prof Dr Mehmet Rami Helvaci
07400, ALANYA, Turkey
Phone: 00-90-506-4708759
Email: mramihelvaci@hotmail.com

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Abstract

Methods: Sickle cell diseases (SCD) patients were studied.

Results: We studied 222 males and 212 females (30.8 vs 30.3 years of age, p>0.05, respectively). Smoking (23.8% vs 6.1%, p<0.001), alcohol (4.9% vs 0.4%, p<0.001), transfused red blood cells (RBC) in their lives (48.1 vs 28.5 units, p=0.000), disseminated teeth losses (5.4% vs 1.4%, p<0.001), ileus (7.2% vs 1.4%, p<0.001), stroke (12.1% vs 7.5%, p<0.05), chronic renal disease (CRD) (9.9% vs 6.1%, p<0.05), cirrhosis (8.1% vs 1.8%, p<0.001), chronic obstructive pulmonary disease (25.2% vs 7.0%, p<0.001), coronary heart disease (18.0% vs 13.2%, p<0.05), leg ulcers (19.8% vs 7.0%, p<0.001), and digital clubbing (14.8% vs 6.6%, p<0.001) were all higher in males, significantly.

Conclusion: As an accelerated atherosclerotic process, hardened RBC-induced capillary endothelial damage terminates with end-organ insufficiencies in early decades of life in SCD. Although atherosclerotic endpoints are so common, we detected no case of diabetes mellitus (DM) probably due to lower excess fat tissue. As the most common cause of CRD, DM may be a relative insufficiency of pancreas against the excess fat tissue. Increased blood and insulin requirements of excess fat in contrast to decreased blood supply of excess tissue and pancreas both due to excess external pressure and internal narrowing of vasculature may be important for DM. As the most common cause of DM, obesity may be an irreversible atherosclerotic endpoint in human body. Acarbose and metformin are oral, safe, cheap, and effective drugs to prevent obesity.

Key words: Sickle cell diseases, excess fat tissue, obesity, acarbose, metformin, endothelial inflammation, atherosclerosis