Microvascular Function is Reduced in Normotensive Salt-sensitive Individuals Independent of Dietary Sodium Intake.

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Purpose: The underlying mechanisms of salt sensitivity of blood pressure (BP) are complex and poorly understood and may be due in part to impaired microvascular (MV) function. Thus, we sought to determine whether MV function is altered in salt-sensitive (SS) compared to salt-resistant (SR) adults during low (LS) and high (HS) dietary sodium conditions. **Methods:** Six healthy SS and 6 healthy SR adults were studied (SS: 2M, 4F; age 48±4 yrs; SR: 2M, 4F; age 44±3 yrs). Following a run-in diet, subjects were randomized to a 7 day LS (LS; 20 mmol/day) and 7 day HS (HS; 350 mmol/day) diet (controlled feeding study). Salt sensitivity was defined as a > 5 mmHg change in 24-hour mean BP from the LS to HS diet. MV function was assessed using laser Doppler flowmetry to measure red blood cell flux during local heating (42°C). Cutaneous vascular conductance (CVC) was calculated as RBC flux/MAP and all data were expressed as a percentage of the maximum CVC (28 mM SNP, 43°C) **Results:** 24-hour MAP increased in the SS group between the LS and HS diet, but was unchanged in the SR group (SS: LS: 86±2, HS: 94±2 mmHg, $p<0.05$; SR: LS: 83±3, HS: 83±3 mmHg, $p>0.05$). Plateau %CVCmax was impaired in the SS group on the LS diet (78±4 vs. SR: 92±1%; $p<0.05$). Plateau %CVCmax was reduced in the SR subjects on the HS diet ($p<0.05$) but not in the SS subjects. There were no differences in plateau %CVCmax on the HS diet between groups (SS: 82±5 vs. SR: 81±3%; $p>0.05$). **Conclusion:** These data indicate that MV function is impaired in SS adults independent of dietary sodium intake. Future studies are warranted to elucidate specific effects of MV impairments on salt sensitivity of BP.

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