Figure 12: Simulation results of average delay for FAST, RBVT-R, GyTAR, GPCR, and GPSR with obstacles using different CBR and node densities

packets dropped. Although, the PDR of GPCR are slightly higher in some cases (as depicted in Figures 11(a), 11(b), and 11(c)). There are two reasons for these results. First, it is likely that there are non-empty intersections with enough vehicles to forward messages. Second, the packet did not stuck in local maxima.

Figures 12(a)-12(c) show that the FAST has about 20%, 30%, 65%, and 80% lower average delay than GyTAR, RBVT-R, GPCR, and GPSR routing protocols. The average delays of FAST are about 2.5 and 2.3 seconds when nodes densities are 100 and 150. The delay further decreased to less than 2.0 seconds when node density increases to 200 nodes. This is because in the proposed FAST the nodes do not forward the message across the intersection that may cause long time to reach at destination node. The average delay of FAST decreases when node densities are increased in all cases. The main reason is that the routes remain active for longer periods of time as number of nodes increases. The source node repairs the route