

Background: Benign prostatic hyperplasia (BPH) is highly prevalent in men between the ages of 60-80. Due to the enlargement of the prostate, men develop lower urinary tract symptoms (LUTS). Prostate is the only solid organ that grows during adulthood, and its growth rate is quite variable amongst men. Currently, one of the main medical therapies for BPH is 5-alpha reductase (SRD5A) inhibitor (5ARI). While the variable growth rate of the total prostate gland is recognized, the variable growth rate of different prostate zones and their response to 5ARI treatment among adult male remains largely unclear. **Methods:** Prostate MRI data and clinical information of 160 patients who had at least three prostate MRI's from 2003 – 2020 with BPH and low grade prostate cancer were collected retrospectively. Prostate volume was measured for the central zone, peripheral zone and total prostate. **Results:** We demonstrated that prostate growth rate vary depending on age, the prostate zone and 5ARI use. Specifically, between ages 60-70, peripheral zone had the highest growth rate ($p=0.026$), whereas the central zone did not. Furthermore, multivariate analysis showed that age and comorbidities are independently associated with the peripheral zone ($p=0.026$ and $p=0.048$, respectively), but not the central zone. Lastly, 5ARI use is significantly associated with the reduction in growth rate in the central zone ($p=0.025$), not the peripheral zone. **Conclusion:** The growth pattern of the prostate vary between the central and peripheral zones, and is dependent on age and comorbidities. In addition, reduction of the prostate size as a result of the 5ARI treatment occur mainly at the central zone. Therefore, assessing the growth pattern of different prostate zones will better inform us about the underlying biology and responsiveness to therapy.