AQP1 and AQP9 immunoexpression in the UCh rats epididymis (ethanol voluntary consumption)

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The UChA and UChB rats are rare models for mature and stored spermatozoa. Some studies suggested the involvement of proteins, the aquaporins (AQPs), in fluid transport mechanism. AQP1 and for related to genetic factors, biochemical, physiological, nutritional and pharmacological alcohol effects. Ethanol influences the epididymis weight and spermatozoa motility, consequently the reproductive function in adult rats is altered. Fluid reabsorption and secretory capacity by epididymal epithelium creates the appropriate environment AQP9 are the most investigated in peritubular space and epithelium epididymis. So, the aim of this study was to examine possible alterations in the epididymis AQP1 and AQP9 expression from UChA and UChB rats. The fragments of the epididymis initial segment, caput, corpus and cauda were obtained from 15 adult male rats, UChA (ethanol 10% low consumption), UChB (ethanol 10% high consumption) and Wistar. The fragments were collected and submitted to histological analyses and immunohistochemistry to AQP1 and AQP9. The results showed an AQP1 expression increased in UChB rats accompanied by luminal decreased of the caput forward to the epididymis cauda compared to UChA and Wistar rats. The AQP9 expression showed an increased only in epididymis caput in UChB rats where the diameter decreased too. Conclusion: The ethanol high consumption causes alterations in the AQPs, especially in AQP1 expression, and also in the epididymis luminal diameter. In the peritubular space, AQP1 would serve to remove water from this site and thus maintain water equilibrium in these tissues. Maybe, the AQP1 increase could be relation to the luminal compartment reduction. The luminal diameter regression in caput is coincident with the region that AQP9 has a higher expression. Therefore, this water channel could be influenced in this reduction which is maintained in other regions. The AQP1 and AQP9 expression alterations could be attributed to morphological and physiological variation in epididymis epithelial and peritubular tissues induced by ethanol. The ethanol causes AQP1 and AQP9 differential expression in the epididymis.

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