

Comparative study of urinary cytology in urine and bladder washing samples, and between simple smear, membrane filter and cytocentrifugation techniques

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To verify if there is any influence on bladder transitional cell carcinoma detection when biologic specimens are obtained, directly, from urine samples or bladder washing, with variable volumes and analyzed by three different procedures. Prospectively, ninety eight patients with transitional cell carcinoma of bladder were evaluated for urinary cytology. Urine and bladder washing specimens were divided in 10 ml and 100 ml samples and they were processed to obtain slides to be studied by cytocentrifuge, membrane filter (Millipore) and simple smear techniques. They were submitted to modified Papanicolaou staining and classified as positive, suspicious and negative. The surgical specimens were processed by standard histological techniques, and the tumors graded according to the Ash system. Data were analyzed using Q Cochran's test and McNemar test, considering type one error of $< 5\%$. Urine samples obtained from patients with grades I, II, III and IV tumors were classified cytologically as positive, respectively, in 25%, 79,9%, 95% and 85,4% by membrane filter, in 29,2%, 73,5%, 81,8% and 68,3% by cytocentrifuge of 10 ml, in 18%, 68,2%, 79,7% and 75,6% by simple smear of 10 ml, in 44,4%, 84,6%, 88,8% and 75,6% by cytocentrifuge of 100 ml and in 32%, 75,1%, 85,5% and 78% by simple smear of 100 ml. Bladder

washing samples obtained from patients with grade I, II and III tumors were classified cytologically as positive, respectively, in 94,7%, 96,8% and 100% by membrane filter, in 93,6%, 94,3% and 97,6% by cytocentrifuge of 10 ml, in 65,2%, 85,5% and 97,6% by simple smear of 10 ml, in 95,7%, 96,4% and 100% by cytocentrifuge of 100 ml and in 83,1%, 87% and 100% by simple smear of 100 ml.

Comparative samples of urine and bladder washing. The mean positivity in the urine were 37,6%, 82,4% and 88,4%, and in the bladder washing were 94,3%, 96,4% and 99,2%, in tumors grade I, II and III, respectively. The oncotic cytology on bladder washing samples was superior to urine samples cytology, and also cytocentrifuge or membrane filter over simple smear technique in bladder washing or urine samples of grade I or II tumors. The increase of urine or bladder washing samples volume, improved the positivity of cytology by simple smear technique for grade I or II tumors, or by cytocentrifugation technique for grade I tumor. In Grade III or IV tumors, the technique, the type or the volume of samples do not change results, except for simple smear of 10 ml of urine that was worse. Among all the techniques, samples or volume, the best results were obtained with cytocentrifuge of 100 ml and the worst was of simple smear of 10 ml.

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