

The study of the change of bladder permeability in intravesical albumin sensitized rat.

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AIMS OF STUDY: The goal of this study was to make a new experimental model to measure the change of bladder permeability in albumin sensitized rat.

METHODS: Rats were sensitized by intravesical injection of ovalbumin(10mg./kg) given on days 1, 3, 5, and 7. Number of involved rats were eight, and divided into two groups, control and sensitized groups. The studies were done four weeks after the last injection. Controls were used at the same time with the sensitized animals. Bladder tissue was placed at interchamberal plane. And the changes of bladder permeability were measured by transmembrane resistance and ascertained by ¹⁴C-mannitol permeability. Transmembrane resistance was calculated from changes in short circuit currents(Isc). transmembrane mannitol permeability, samples were taken by 20 minute intervals during 120minutes. Transmembrane mannitol permeability was determined from the slopes of ¹⁴C-mannitol through rat urinary bladder.

RESULTS: Transmembrane resistances were 456 ± 38 Ω in sensitized group and 782 ± 207 Ω in control group($p \leq 0.02$). Transmembrane resistance in sensitized groups was significantly lower than that of control groups. For evaluating transmembrane mannitol permeability, samples were taken by 20 minute intervals during 120minutes. Transmembrane mannitol permeability was determined from the slopes of ¹⁴C-mannitol through rat urinary bladder. The slopes (c-CPM/min) were 7.6, 6.8, 4.2, 2.9 at each control groups and 2.15, 5.11, 2.12 at each sensitized groups. The slopes of sensitized groups were more steeper than control groups except one case ($p=0.34$).

CONCLUSIONS: The determination of transmembrane resistance using short circuit current may be a good experimental method measuring the changes of transepithelial permeability in albumin sensitized rat with low cost, no radiation exposure and shorter time.