MP01-18

High performance of 5-aminolevulinic acid induced fluorescent urine cytology for detecting urothelial carcinoma

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Backgrounds & objectives

- Urine cytology has low sensitivity and is often limited in clinical use.
- We investigated the utility of 5-aminolevulinic acid (5-ALA) induced fluorescent urine cytology for detecting urothelial carcinoma (UC).

Materials & Methods

The protocol of the 5-ALA-based fluorescent detection assay

urine sample

centrifuge

add 5-ALA

adjust the concentration to 200μg/ml

MEM and 5-ALA

Gibco ™ (Thermo Fisher Scientific)
5-Aminolevulinic Acid Hydrochloride ™ (Wako)

incubator (37℃, 2 hours)

centrifuge

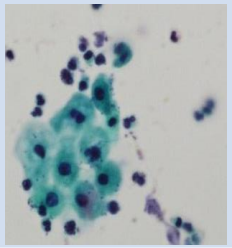
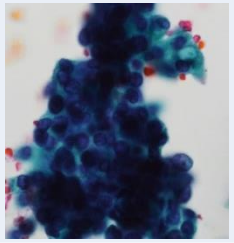
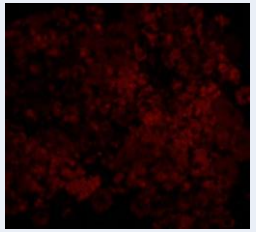
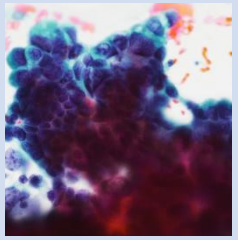
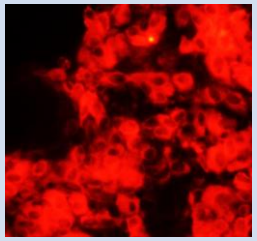
observe

spectrophotometer

ECLIPSE Ni ™ (Nikon)

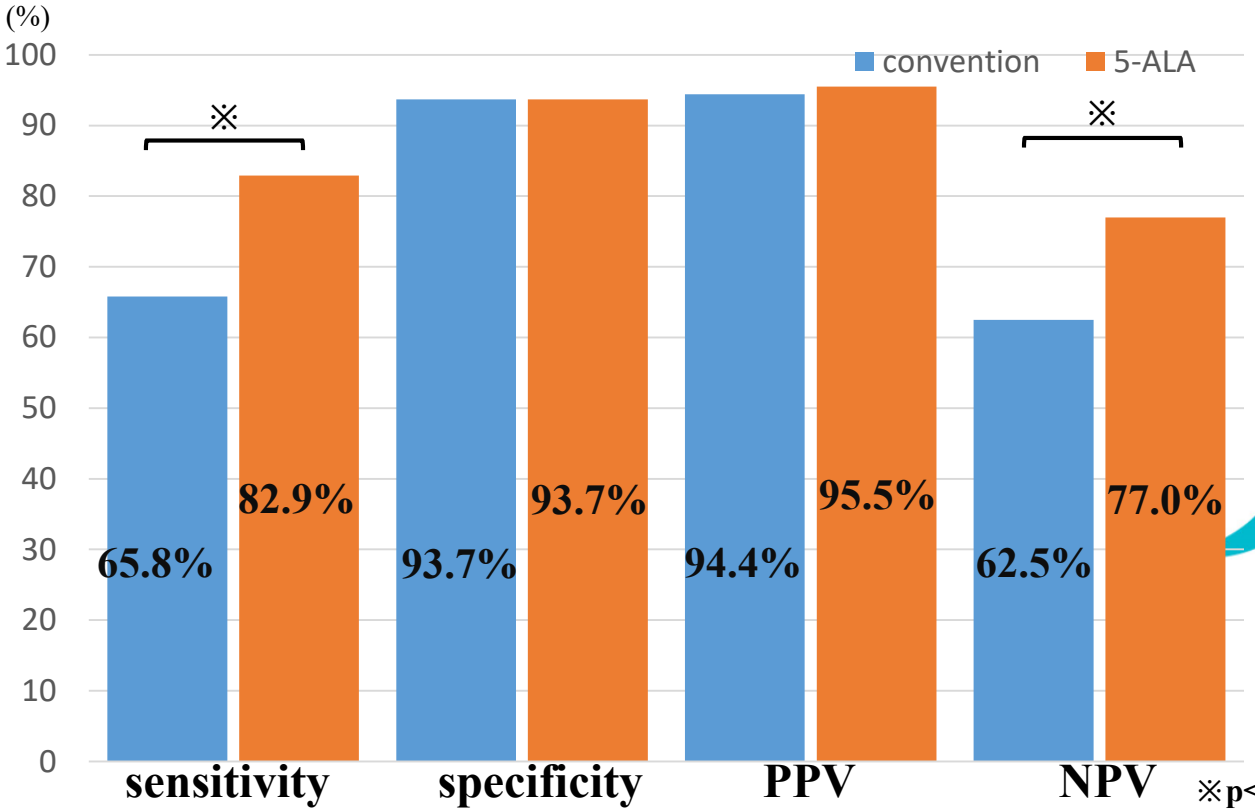
Results 1

Photographic comparison between conventional and 5-ALA-induced fluorescent urine cytology

Conventional	5-ALA	Pathological diagnosis
		BPH
		Cystitis
		Bladder tumor (pTa, high grade)

Results 2

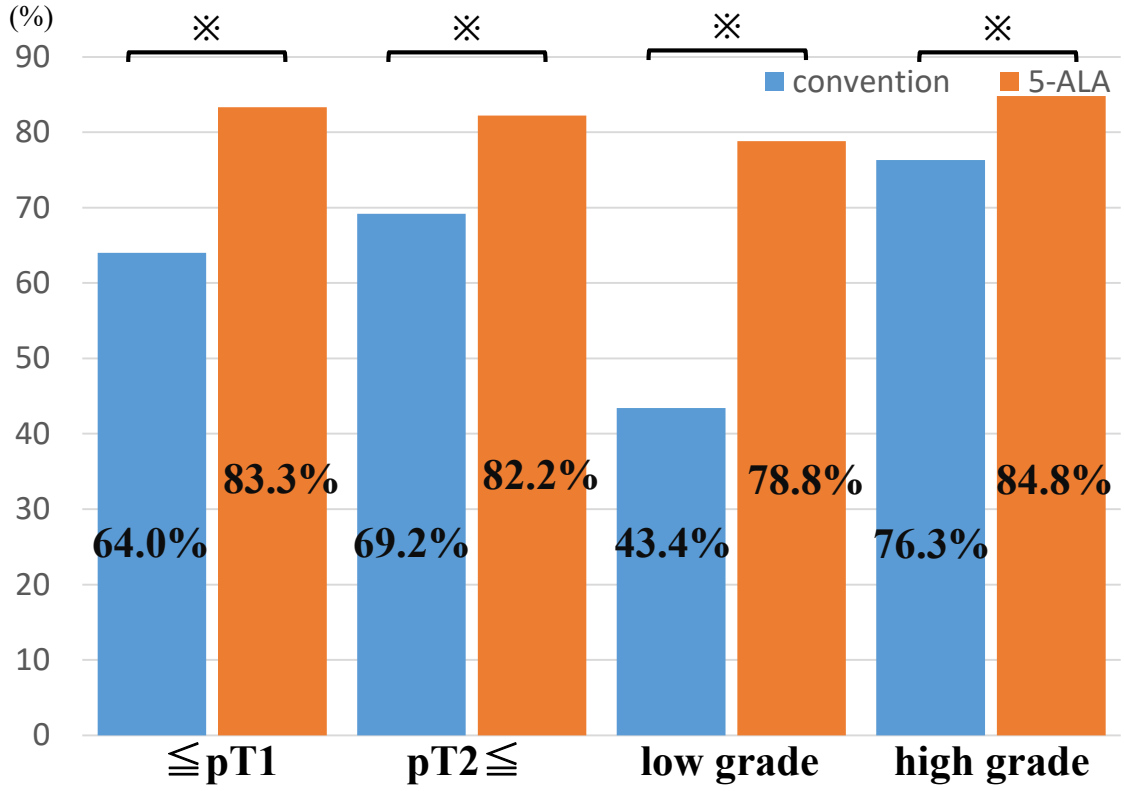
Comparison of sensitivity, specificity, PPV and NPV



Cancer: 310, Control: 189

PPV: positive predictive value, NPV: negative predictive value

Comparison of sensitivity in pT stage and tumor grade



5-ALA-induced fluorescent urine cytology was more sensitive than conventional urine cytology and equally high specific.

Conclusions

- **5-ALA-induced fluorescent urine cytology was more sensitive than conventional urine cytology, regardless of pT stage and tumor grade and equally high specific.**