

# 第五屆 台灣胃腸神經與蠕動學會年會

The 5<sup>th</sup> Annual Meeting of Taiwan Neurogastroenterology and Motility Society

# 服用Baclofen的高解析度咽部功能檢查儀分析

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## INTRODUCTION

- Baclofen is a GABA<sub>B</sub> (gamma-aminobutyric acid B receptor) agonist.
- Baclofen affects gastrointestinal motility, lower esophageal sphincter (LES) tone and transient LES relaxation[1].
- Baclofen suppresses laryngeal muscle activity in animal study[2].
- Unknown: Baclofen impact on oro-pharyngeal swallowing in human.

## AIM

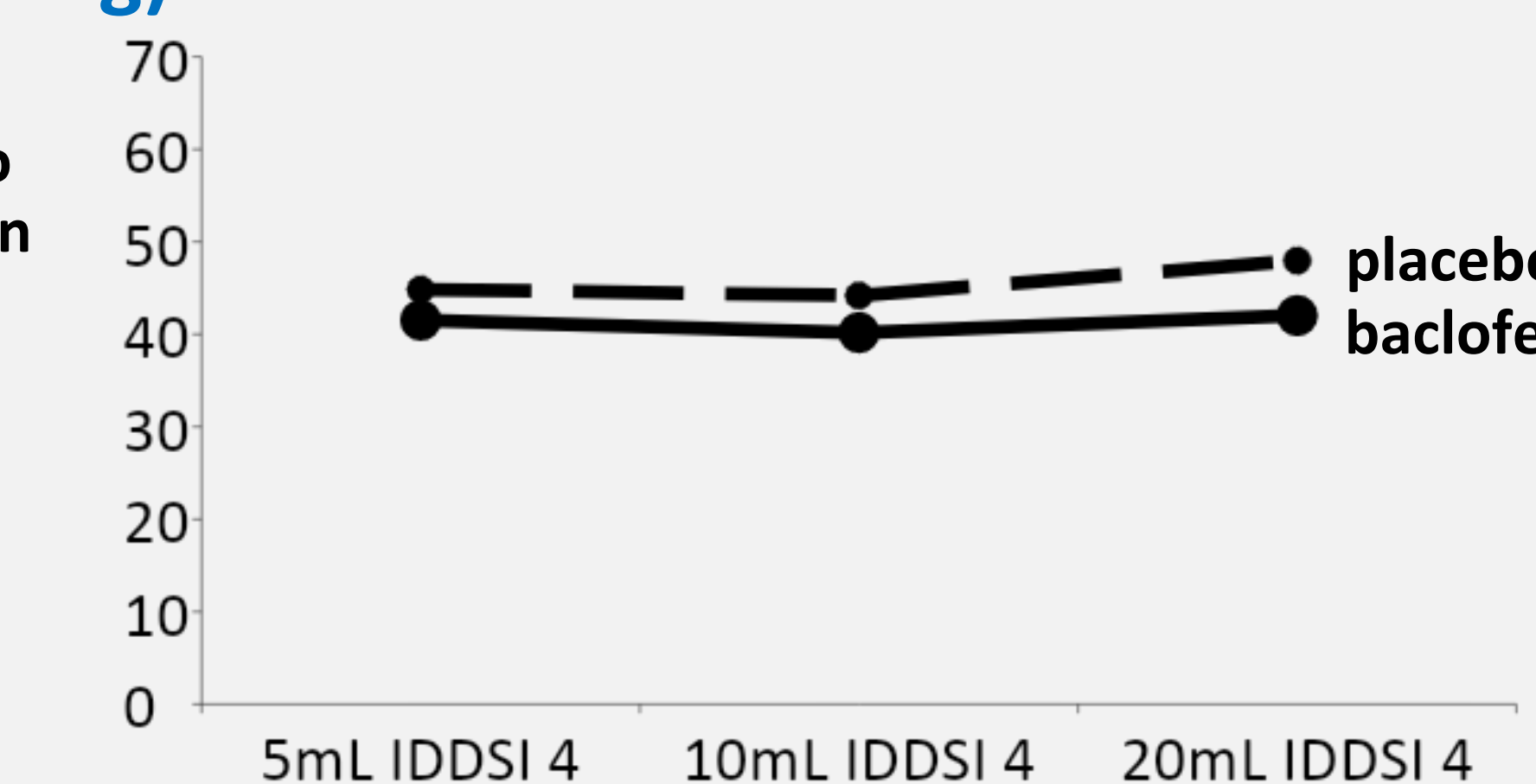
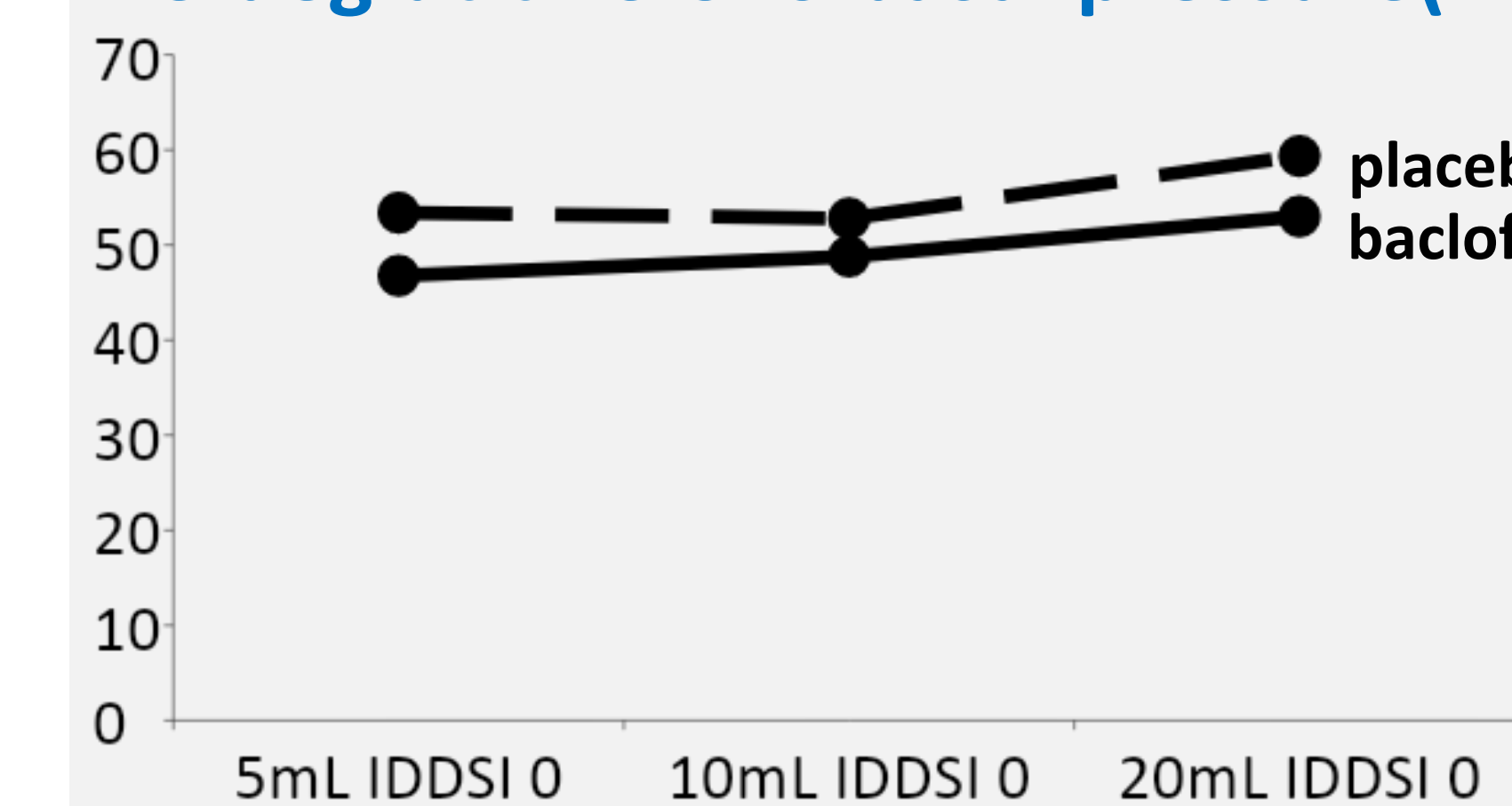
This study aimed to investigate the effect of baclofen on pharyngo-esophageal motor function.

## METHOD

- Inclusion: healthy adult, 20-60 years old, no dysphagia symptom
- Exclusion: esophageal stenosis, GI surgery, abdominal surgery, drugs affecting GI motility, psychiatric disorder
- High resolution impedance manometry system and solid-state catheter (Laborie, Solar GI acquisition unit, MMS)
- IDDSI(International Dysphagia Standardisation Initiative) level 0 and level 4 bolus fluid (SBMkit, Trisco Foods)
- Study procedure:
  - Intervention one hour before study with oral baclofen 5mg or placebo
  - Catheter placement and recording of pharyngo-esophageal segment
  - Triplicate IDDSI level 0 liquid swallows of 5, 10 and 20mL
  - Triplicate IDDSI level 4 liquid swallows of 5, 10 and 20mL
- Analysis on SwallowGateway™ (swallowgateway.com, Flinders University)[3]
- Metrics: pharyngeal contractile integral, upper esophageal sphincter (UES) pre-deglutitive basal pressure, post-deglutitive UES contractile integral, UES maximum opening admittance, mean hypopharyngeal peak pressure, bolus presence time, distension contraction latency, hypopharyngeal intra-bolus pressure and the global swallow-risk-index.
- Piecemeal swallowing was defined when the orally administered bolus was divided into two or more portions.

## RESULTS

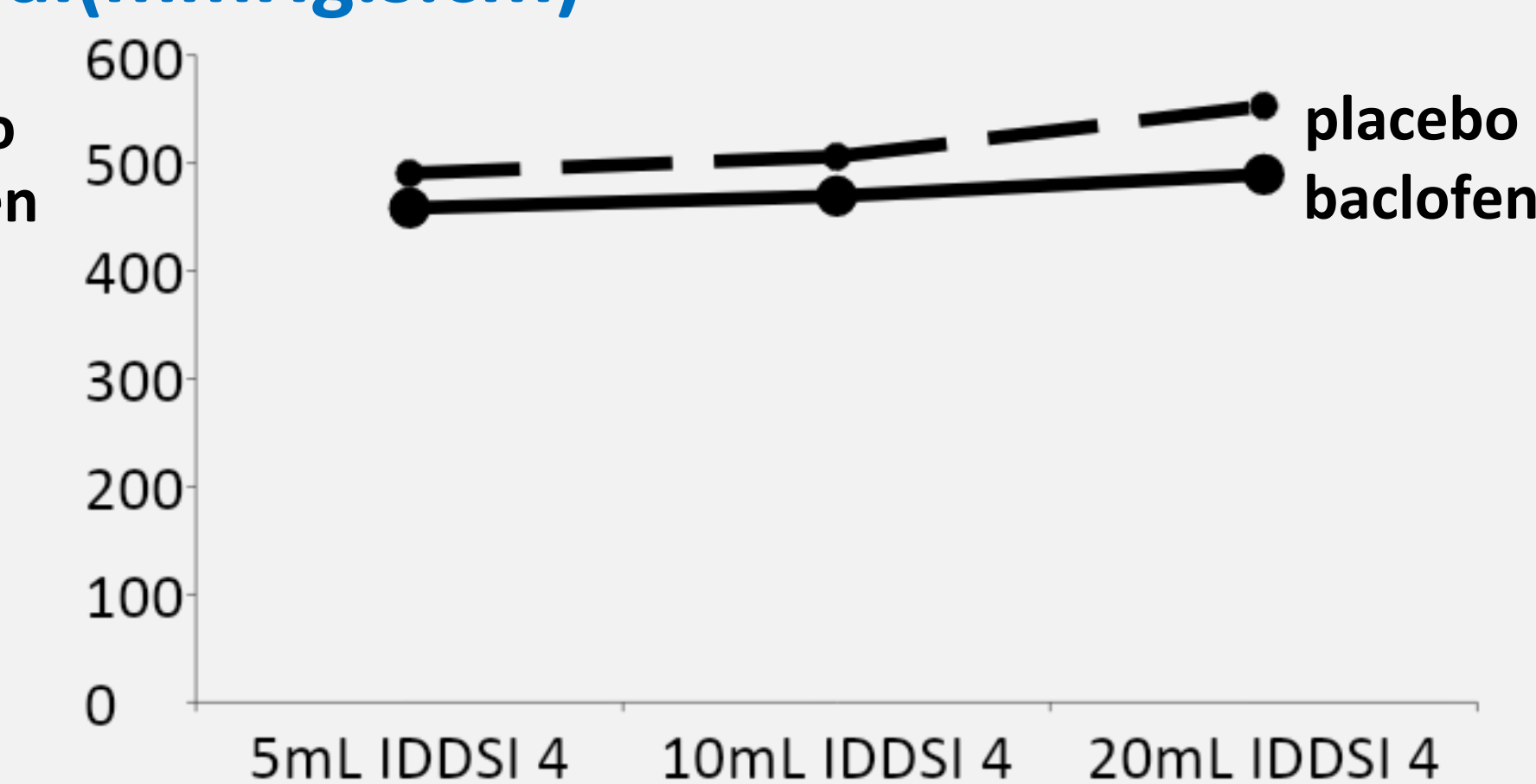
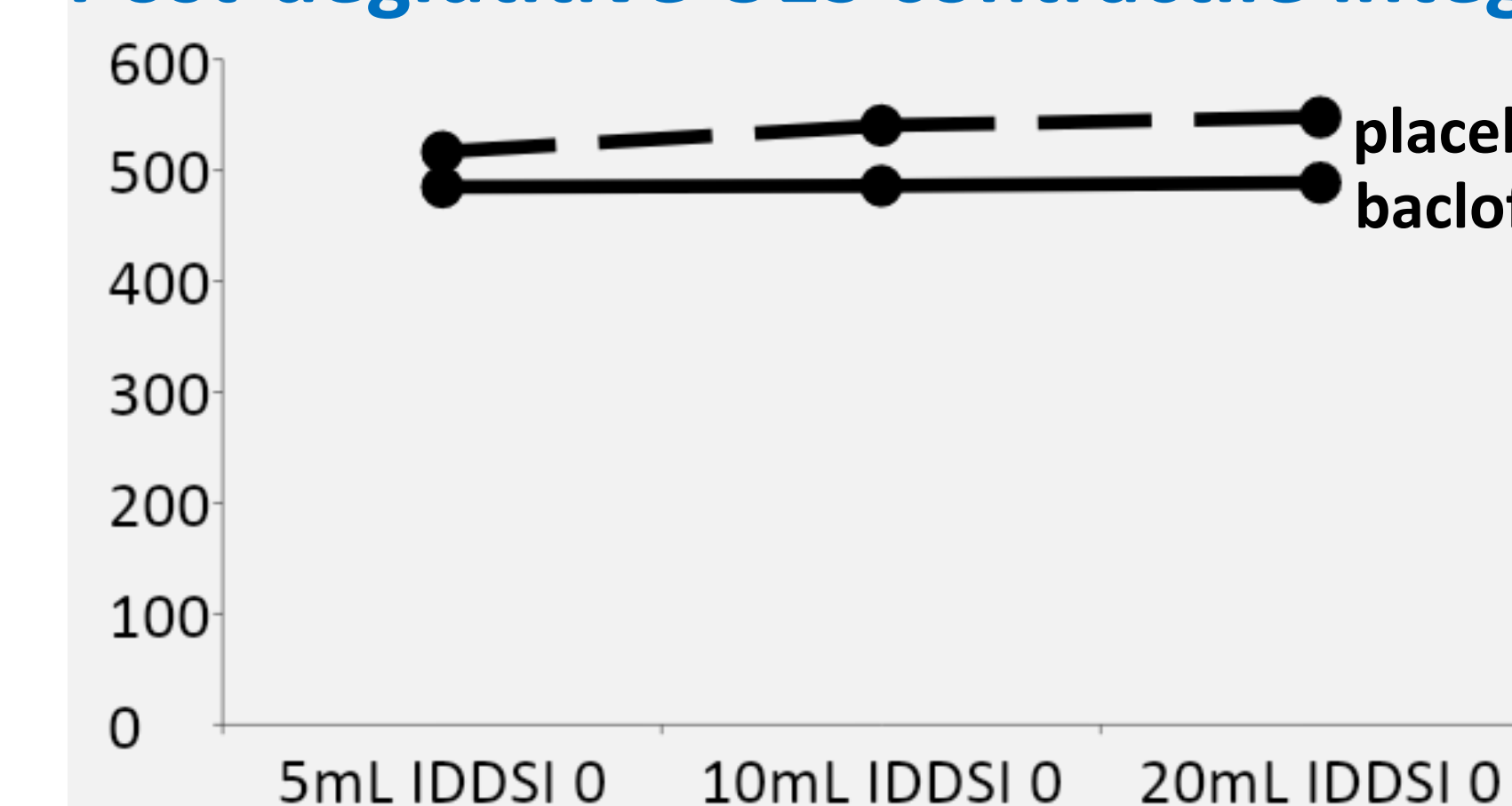
### Pre-deglutitive UES basal pressure(mmHg)



IDDSI /volume	Baclofen	Placebo	p-value
0/5mL	46.77	53.40	0.16
0/10mL	48.80	52.80	0.12
0/20mL	53.01	59.36	0.04*
4/5mL	41.52	44.84	0.01*
4/10mL	40.18	44.18	0.02*
4/20mL	42.02	47.96	0.01*

\*p < 0.05

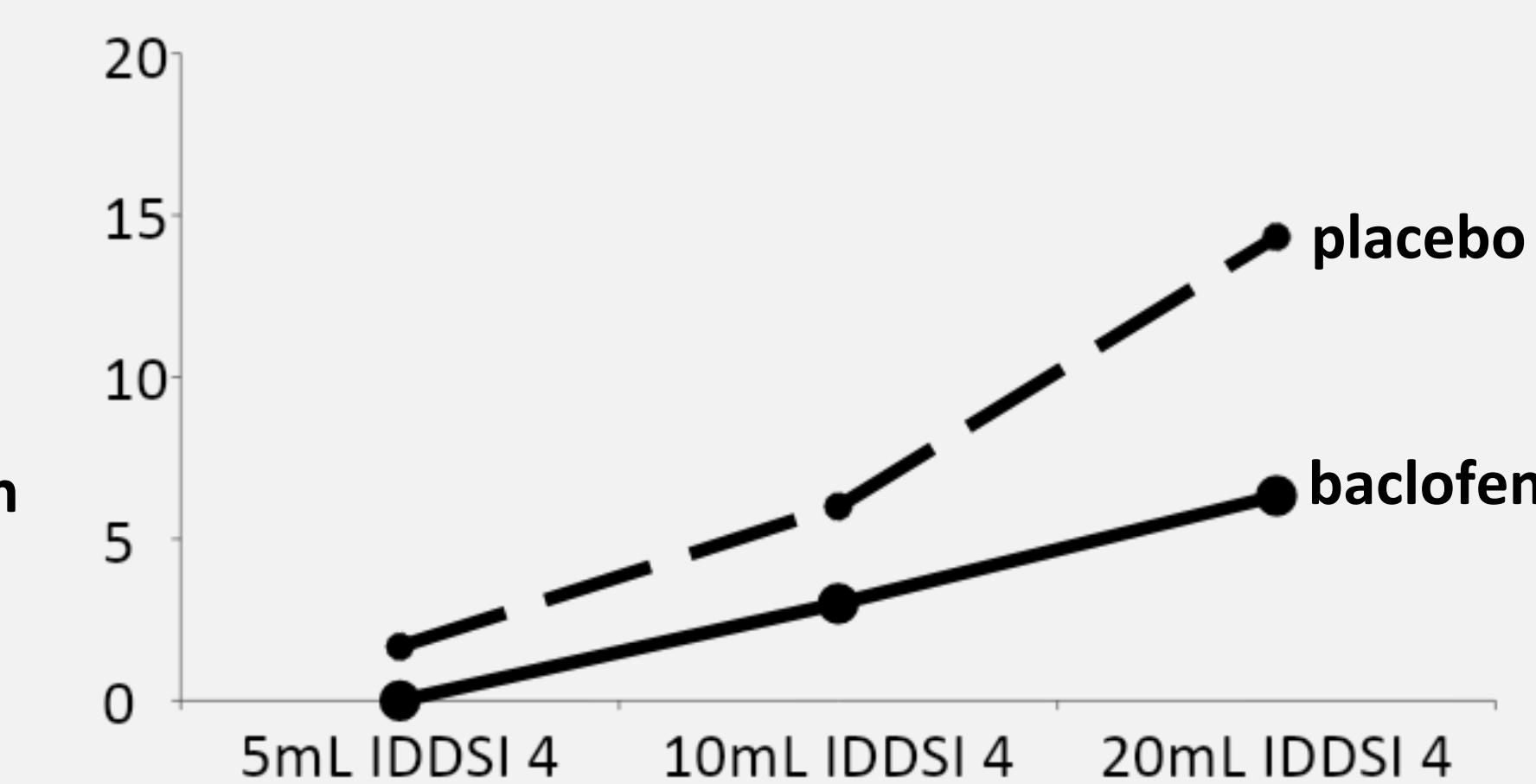
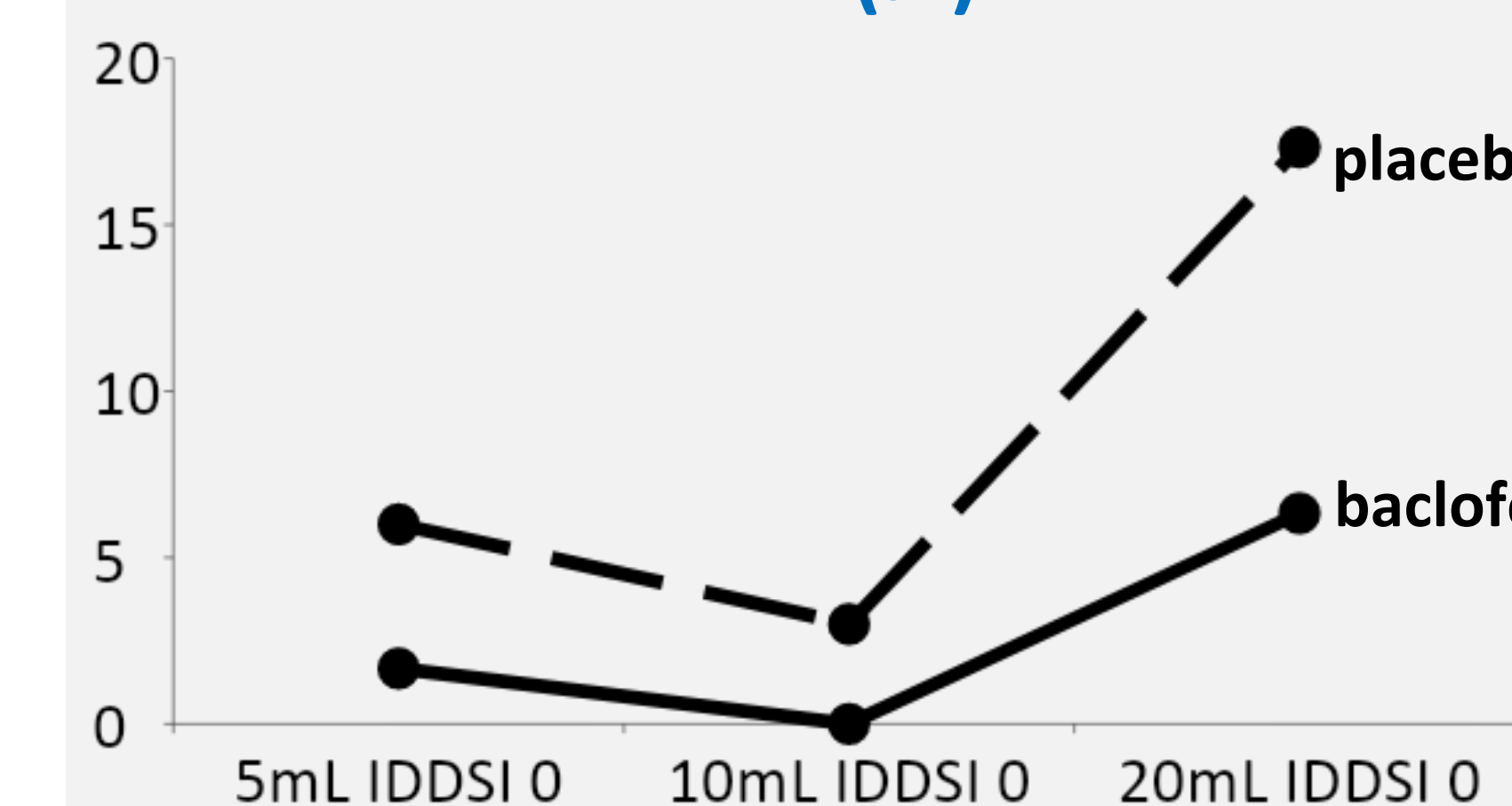
### Post-deglutitive UES contractile integral(mmHg.s.cm)



IDDSI /volume	Baclofen	Placebo	p-value
0/5mL	484.66	516.44	0.24
0/10mL	485.82	540.33	0.06
0/20mL	488.67	547.68	0.19
4/5mL	458.34	490.23	0.04*
4/10mL	469.34	505.79	0.01*
4/20mL	489.30	552.83	0.13

\*p < 0.05

### Piecemeal swallows(%)



IDDSI /volume	Baclofen	Placebo	p-value
0/5mL	1.67	6.00	0.003*
0/10mL	0.00	3.00	0.002*
0/20mL	6.33	17.33	0.003*
4/5mL	0.00	1.67	0.42
4/10mL	3.00	6.00	0.13
4/20mL	6.33	14.33	0.09

\*p < 0.05

### Participants

- 22 healthy volunteers
- 13 male: 9 female
- Age: mean 29 years old(21~41)
- Exclusion: One participant was excluded from the analysis of 20mL bolus due to piecemeal swallowing behavior during all 20mL swallows.

## SUMMARY OF FINDINGS

- All participants tolerated the protocol.
- Most of pharyngeal metrics were not affected by baclofen
- Pre- and Post-deglutitive UES contractility were lower during exposure to baclofen.
- UES contractility were affected more significantly for viscous swallows.
- Piecemeal swallowing behavior was more prevalent at larger volumes.
- Baclofen reduced the proportion of swallows that were piecemeal.

## CONCLUSIONS

- Oral baclofen reduces UES contractility and the incidence of piecemeal swallowing.
- These effects may suggest disruption of pathways that induce reflex activation of the UES.
- Baclofen may affect neuroregulatory mechanisms that modify volitional swallowing behavior to accommodate large bolus size.

## REFERENCES

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