

JAPANESE SOCIETY FOR APHERESIS

COI DISCLOSURE

PRINCIPAL PRESENTER : MIWAKO WATANABE

- ① Consultant :Asahi Kasei Medical Co., Ltd.
- ② Shareholding · Profit : Nil
- ③ Patent royalty : Nil
- ④ Lecture's fee : Nil
- ⑤ Manuscript fee : Nil
- ⑥ Funded research · Joint research funds : Nil
- ⑦ Scholarship contribution : Nil
- ⑧ Endowed chair : Nil
- ⑨ Rewards : Nil

OPINIONAIRE OF PREVENTIVE APHERESIS PATIENTS CONDUCTED AT MIDTOWN CLINIC

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OBJECTIVES

- ◆ To meet the demands for preventive effects of apheresis, we have conducted non-reimbursable DFPP with the main purpose of preventing the progression of atherosclerosis. There were altogether 69 cases, including 18 repeaters, making 120 operations in total in 15 months.
- ◆ Our objective was to investigate the possible future implications of DFPP as a preventive measure through analyzing the response of opinionaire from those who underwent non-reimbursable DFPP.

TARGET POPULATION

○69 cases of DFPP who underwent DFPP since July, 2011 (male 52 cases, female 17 cases).

○Average age : 54.5 ± 10.4 years

○Frequency : 5.3 ± 14.0 times

(Details/ 1 time:51 cases, 2 times: 9 cases, 3 times: 4 cases,
4 times: 1 case, 5 times: 2 cases, 11 times: 1 case, 13 times: 1 case)

○Medical history

- ◆Dyslipidemia 62 cases, Diabetes 24 cases, Hypertension 27 cases
- ◆History of cerebrovascular event 4 cases (cerebral & cardiac infarction)
- ◆Stage 3 CKD (eGFR 50.2/47.3/42.4%) 3 cases
- ◆Atopic dermatitis (severe) 1 case
- ◆History of smoking 26 cases

METHOD 1

- ◆ A written informed consent was obtained after full explanation was done on the consent form approved by the Ethical Committee of our clinic.
- ◆ Venous access was done via 17-22G needle to the median cubital veins on both sides, one side for drawing blood and the other for the return.
- ◆ The pre-treatment blood sample was taken from one side of vein just before the start of the procedure. The post-treatment sample was taken from the blood drained side just after the procedure.

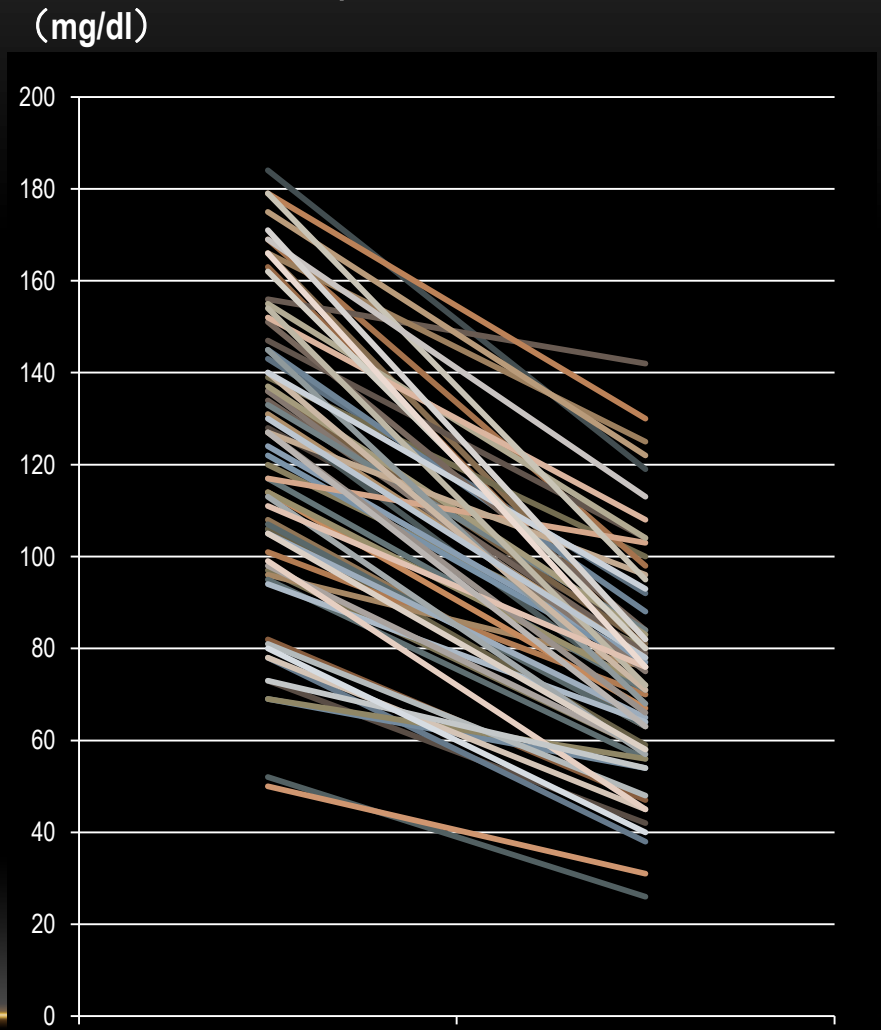
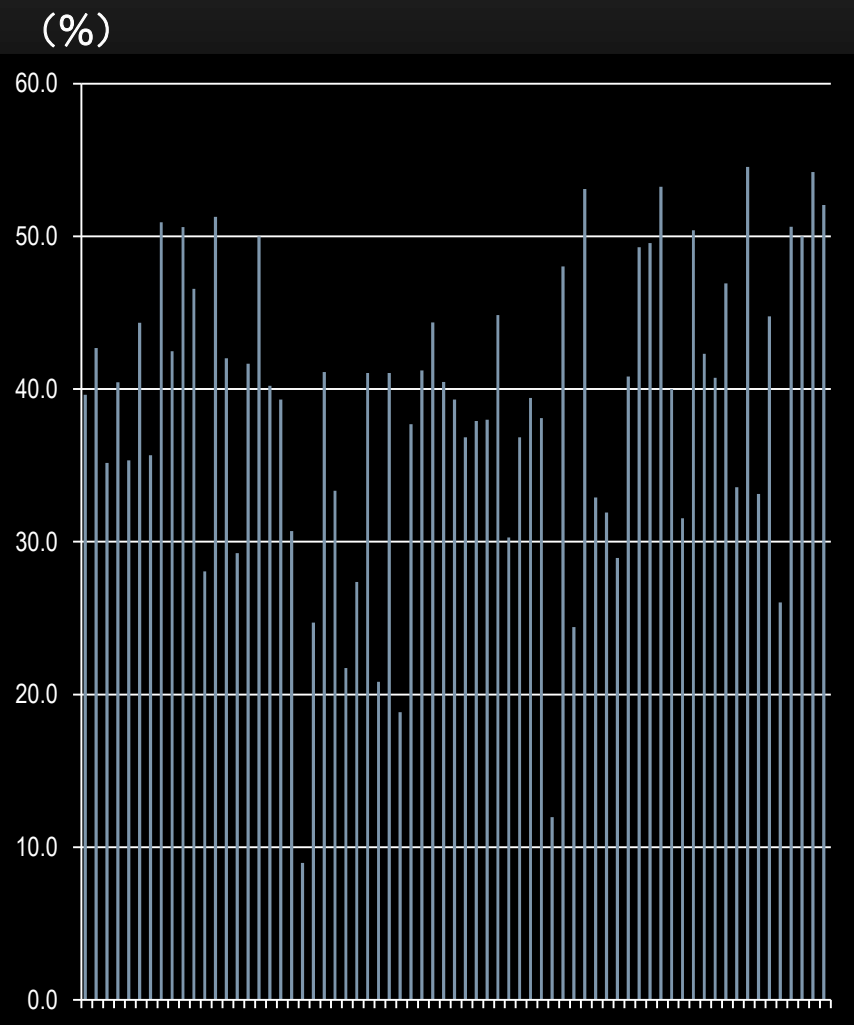
METHOD 2

- ◆ Blood was separated into blood cell and plasma components using a Plasmaflo OP-05W (Asahi Kasei Medical Co., Ltd., Tokyo, Japan) membrane-type plasma separator. Pathogenic substances were removed from the isolated plasma using a Cascadeflo EC-50W (Asahi Kasei Medical Co., Ltd., Tokyo, Japan) plasma component separator.
- ◆ Heparin was used as the anticoagulant (Starting dose: 2,000 units. Maintenance dose: 1,000 units/hour). Blood flow was 30-60 ml/min, plasma flow was 30-33%, and the target plasma treatment volume was taken to be 1,500-2,000 ml.



RESULT①

(LDL : Removal rate and variation)

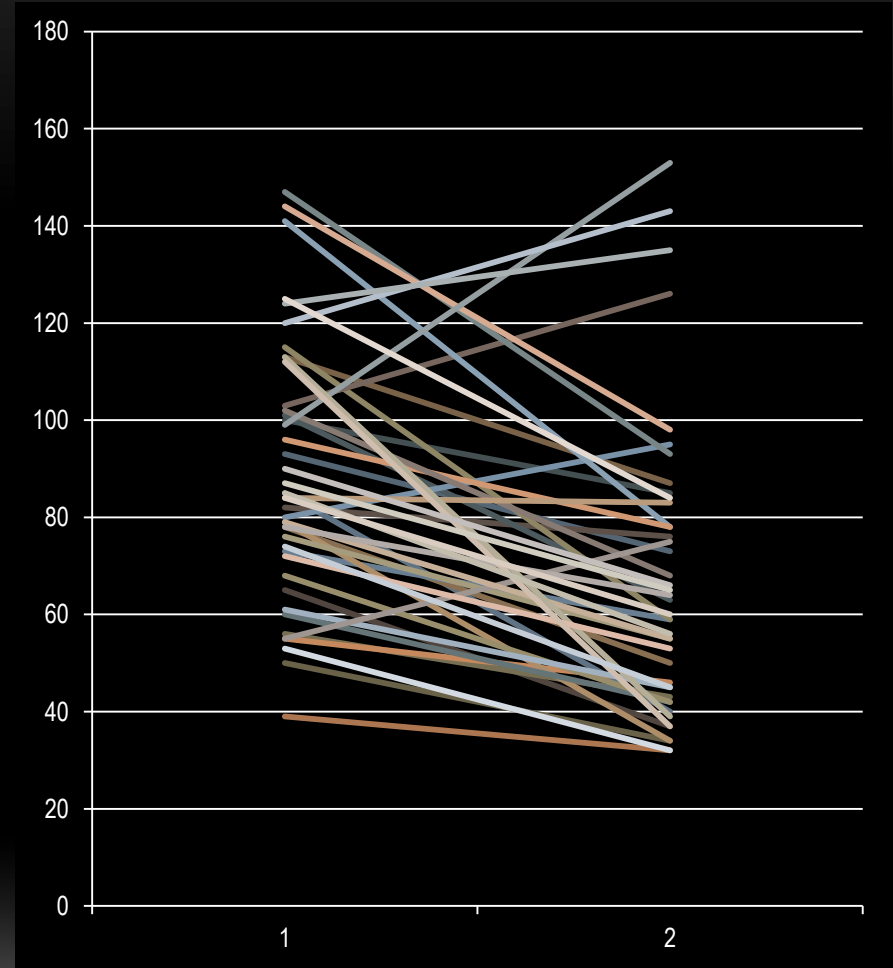
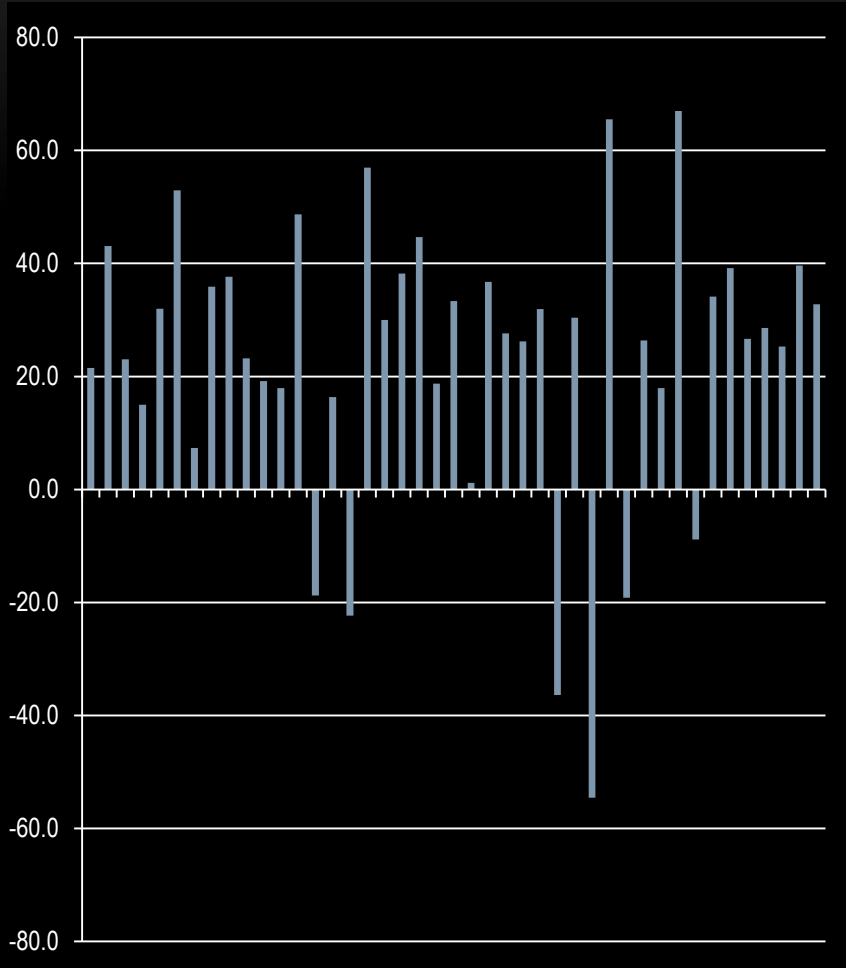


(Before) 123.9 ± 32.7 (mg/dl) (After) 75.7 ± 23.4 (mg/dl)

Average removal rate : 38.8 ± 9.9 (%) $P < 0.001$ (paired t-test)

Result②

(**Oxidized LDL** (N=43) : Removal rate and variation)



(Before) 87.3 ± 25.8 (mg/dl)

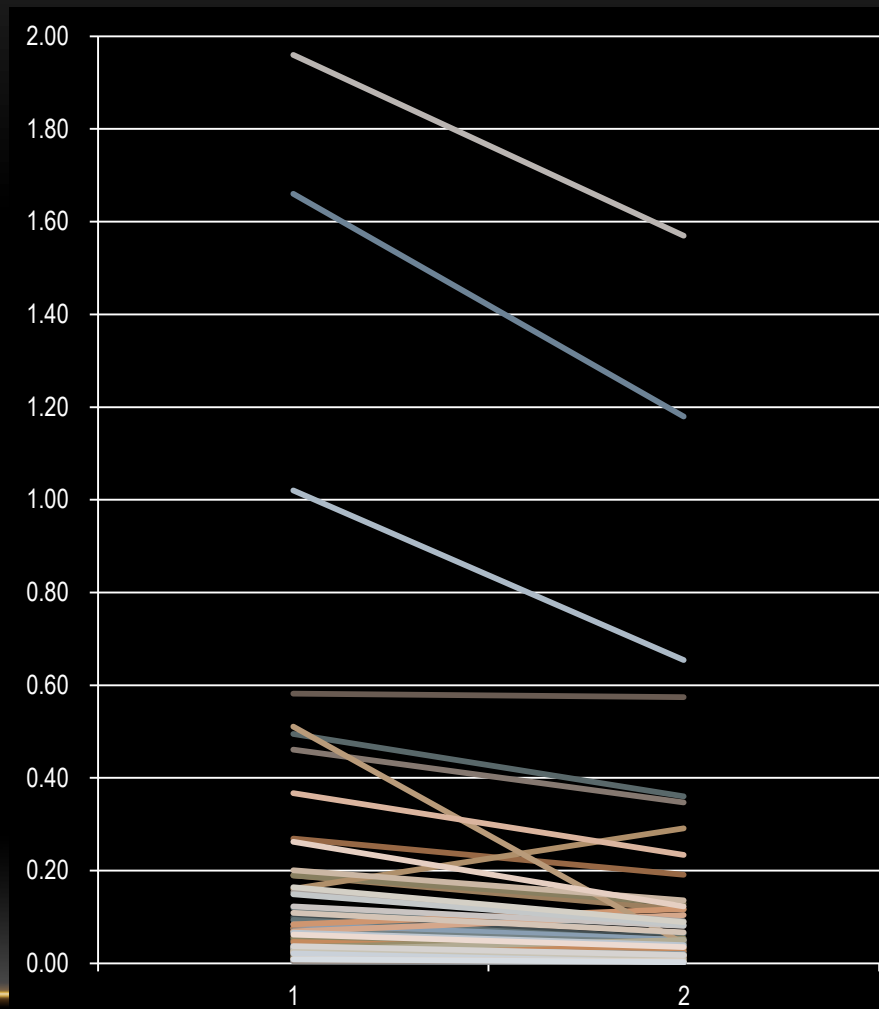
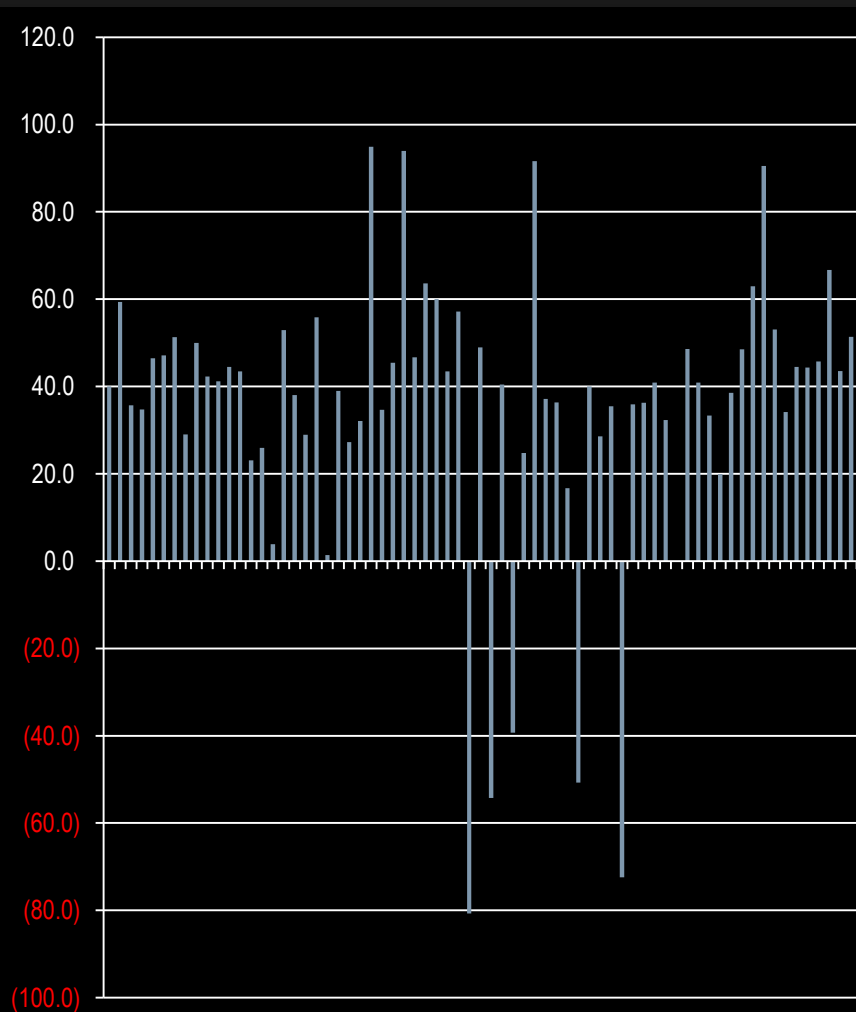
(After) 66.3 ± 29.3 (mg/dl)

Average removal rate : 24.0 ± 24.8 (%)

$P < 0.001$ (paired t-test)

Result③

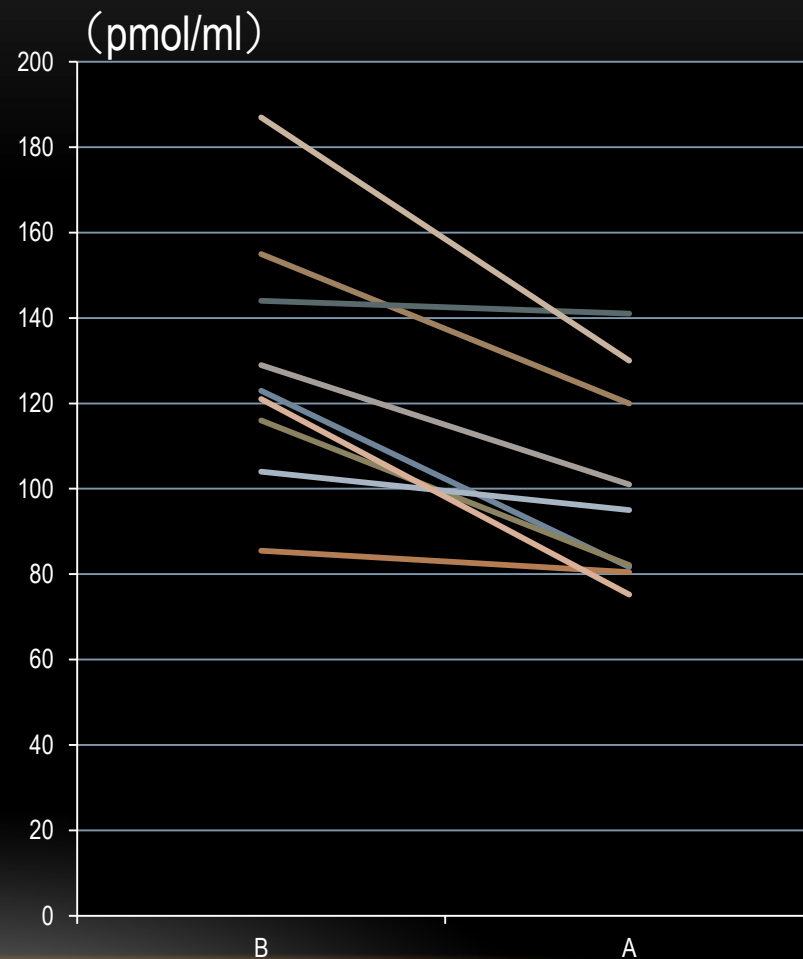
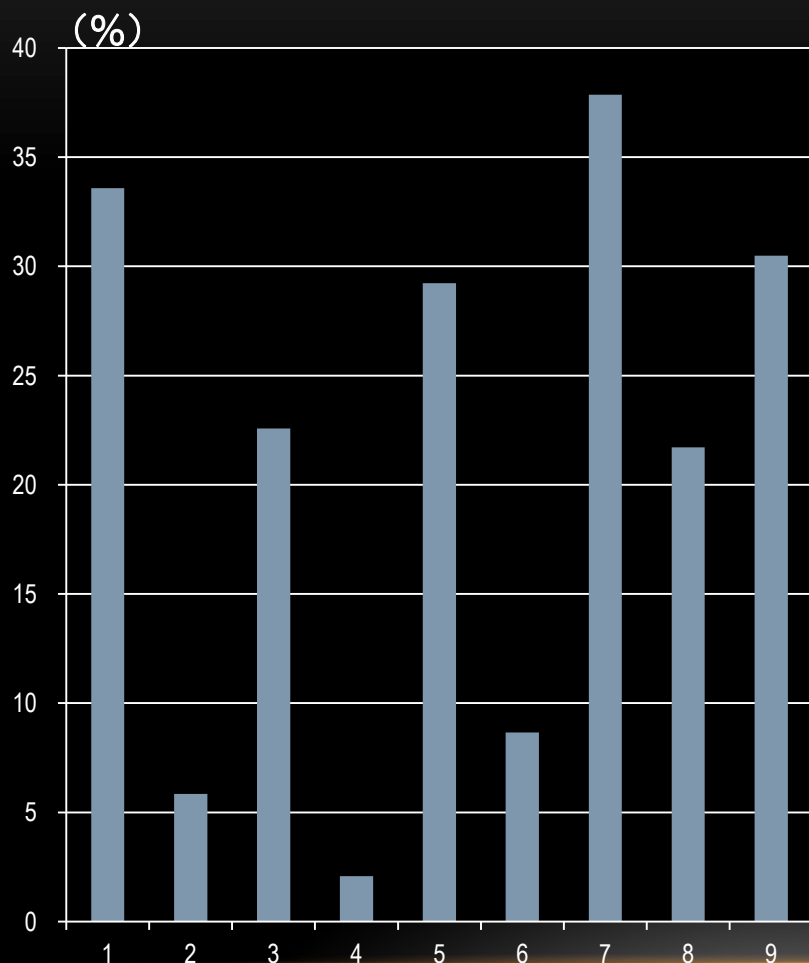
(**hs-CRP** (N=67) : Removal rate and variation)



(Before) 0.163 ± 0.333 (mg/dl) (After) 0.113 ± 0.253 (mg/dl)
Average removal rate : 36.0 ± 32.2 (%) $P < 0.001$ (paired t-test)

Result④

(**Pentosidine** (N=9) : Removal rate and variation)

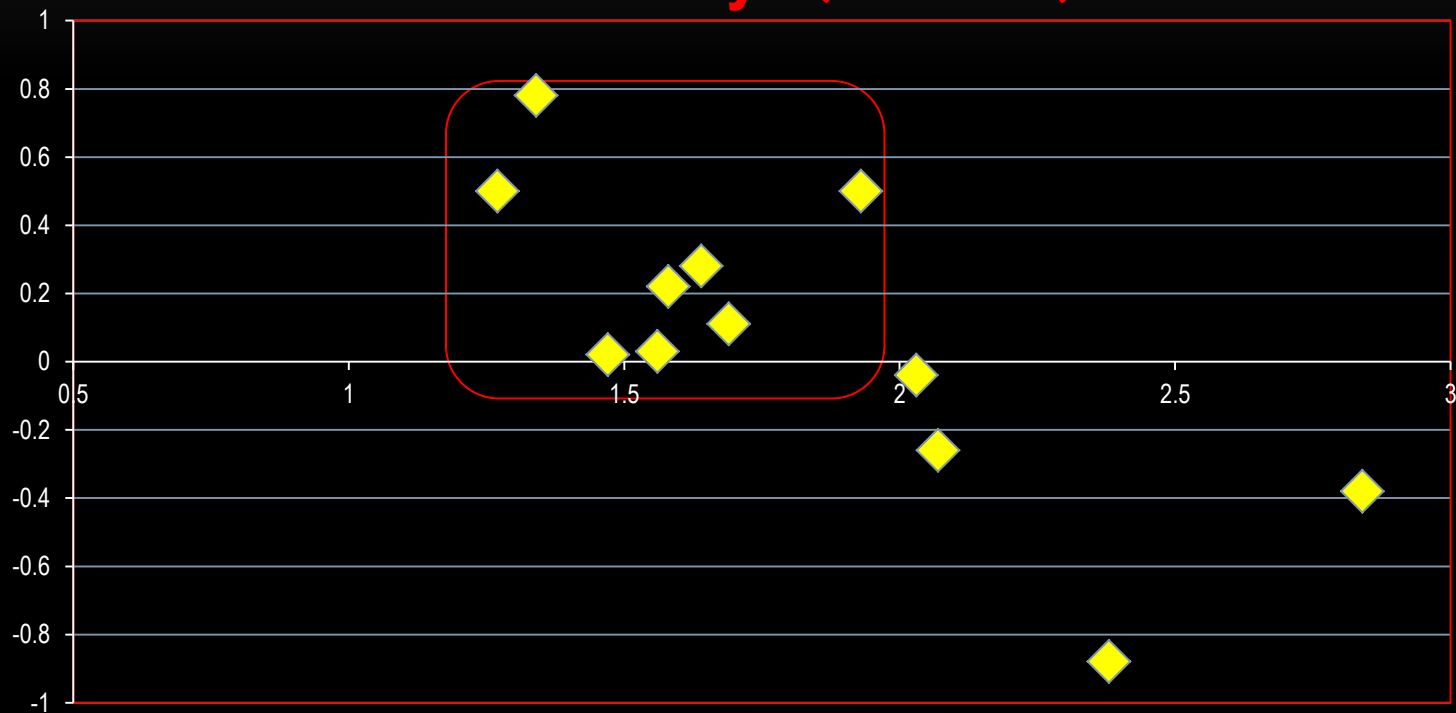


(Before) 129.4 ± 29.7 (pmol/ml) (After) 100.7 ± 24.1 (pmol/ml)
Average removal rate : 21.3 ± 12.9 (%) $P < 0.001$ (paired t-test)

RESULT⑤

(FMD : RHI BEFORE DFPP AND VARIATION)

RHI variability (N = 12)



RHI are plotted before DFPP on horizontal line and fluctuation after DFPP on vertical line.

RHI of coronary arterial disease patients are reported to be below 1.7-1.8 on published theses. All cases of RHI <1.8 showed improvement of RHI after DFPP.

Background of Respondents (24 cases · 34.7%)

- ◆ Male: 20 cases (20/52) Female: 4 cases (4/17)
- ◆ Average age: 54.3 ± 10.6 years (No response group: 54.4 ± 10.4 N.S.)
- ◆ The number of treatments:

Average 2.8 ± 3.1 times (Median 2 times)

Single	10 cases	
2 times	8 cases	} 14 cases (58%)
3 ~ 5 times	4 cases	
6 times or more	2 cases	

- ◆ Response rate by treatment times

Single: 20%(10/51) 2 times: 80.0%(8/10)

3~ 5 times: 80.0%(4/5) 6 times or more: 100%(2/2)

POINTS OF OPINIONAIRE

1. Satisfaction of treatment:

0 (unsatisfied) \sim 10 (very satisfied)

2. Motives & purpose

3. Previous explanation:

0 (hard to understand) \sim 5 (easy to understand)

4. Impression changes before and after treatments

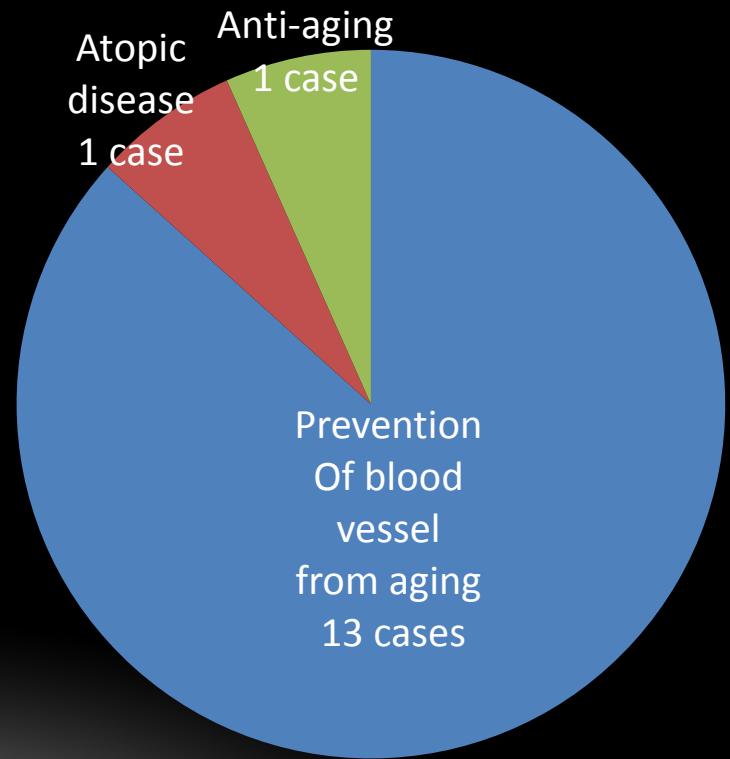
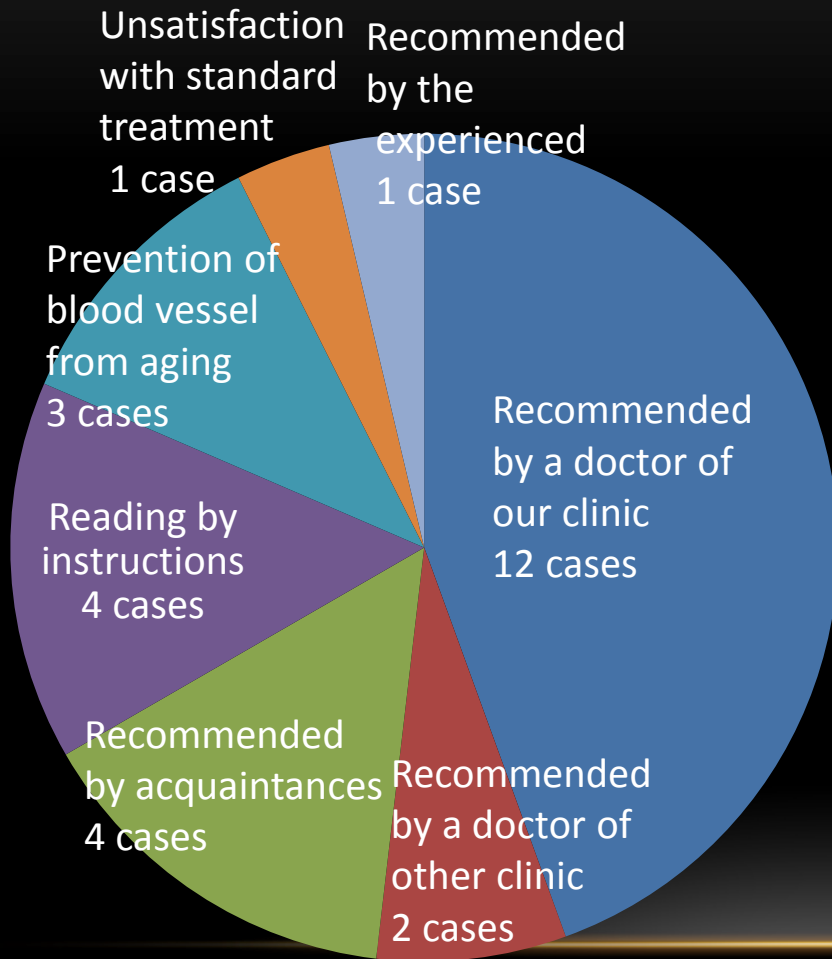
5. Changes in subjective symptoms after treatment

6. Side effects

7. Changes in lifestyle after the treatment

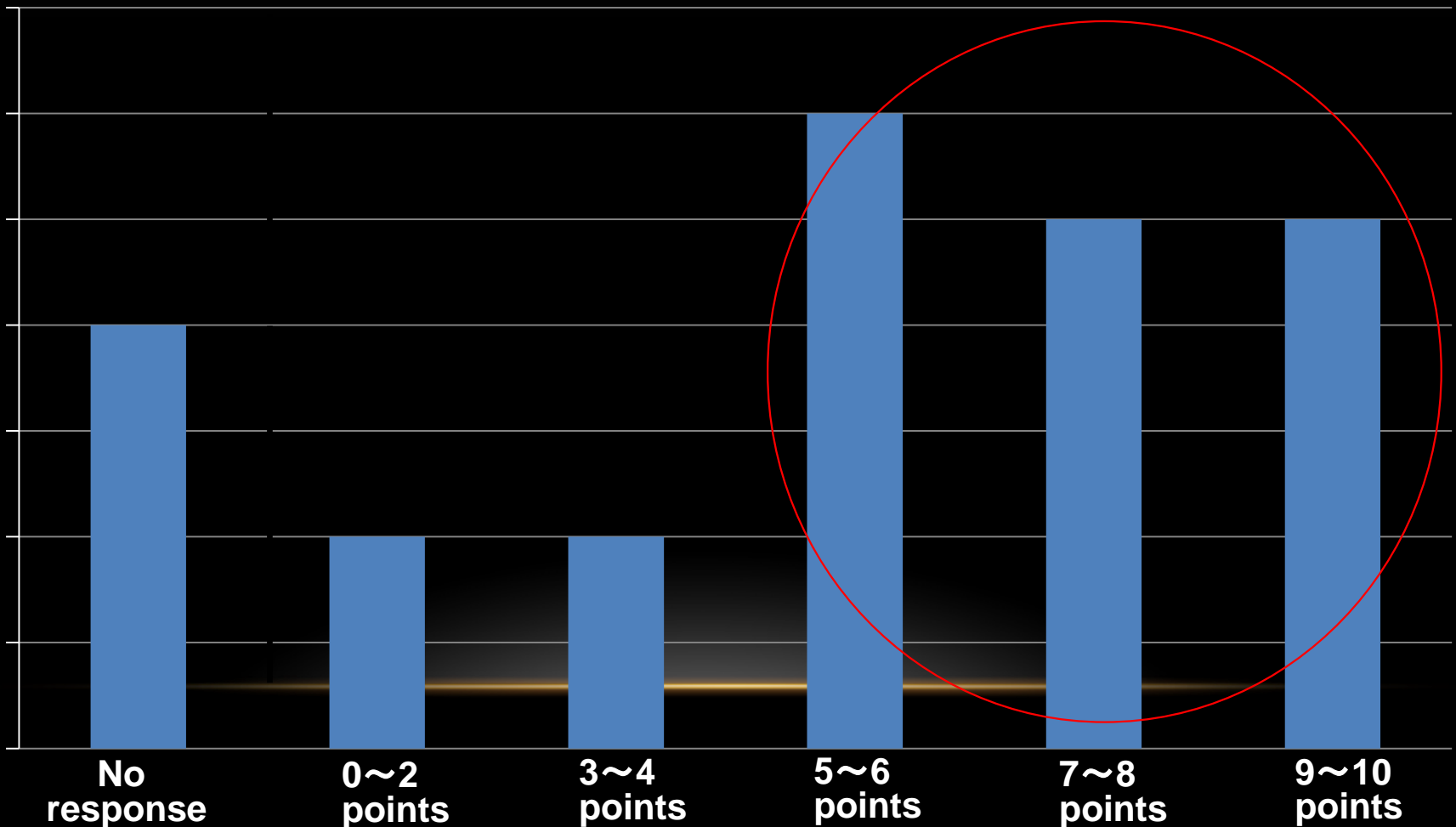
8. Continuity of the treatment

MOTIVES & PURPOSE OF DFPP



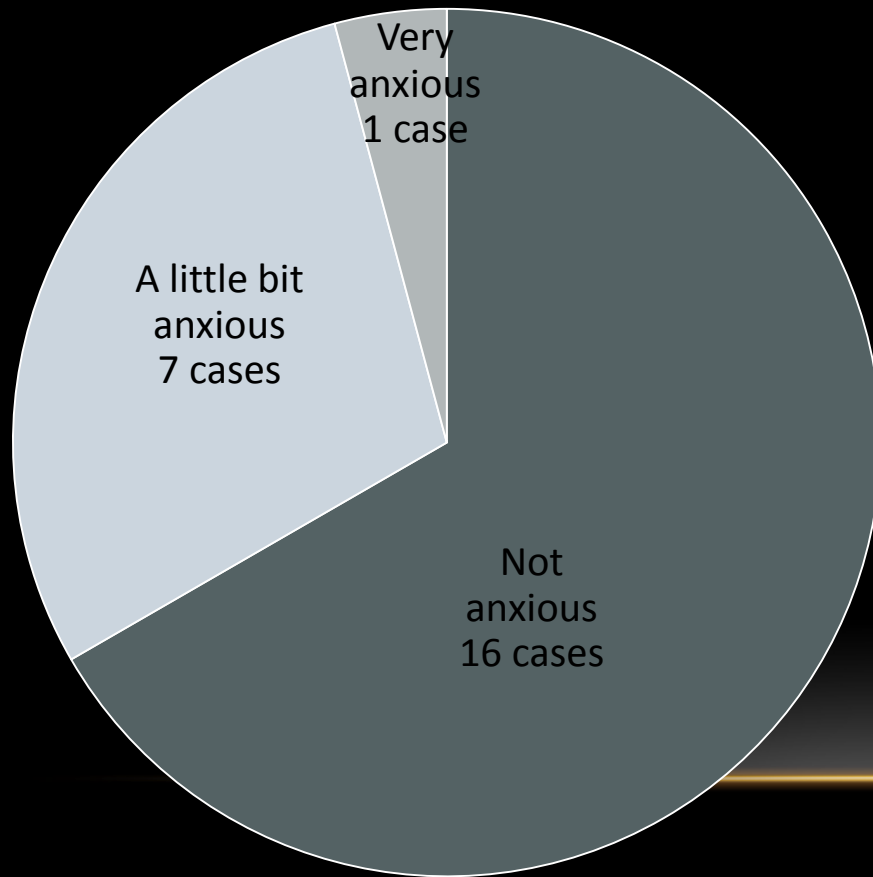
DISTRIBUTION OF THE SATISFACTION WITH TREATMENT (11 SCALES)

Q) Are you satisfied with DFPP as a preventive treatment ?

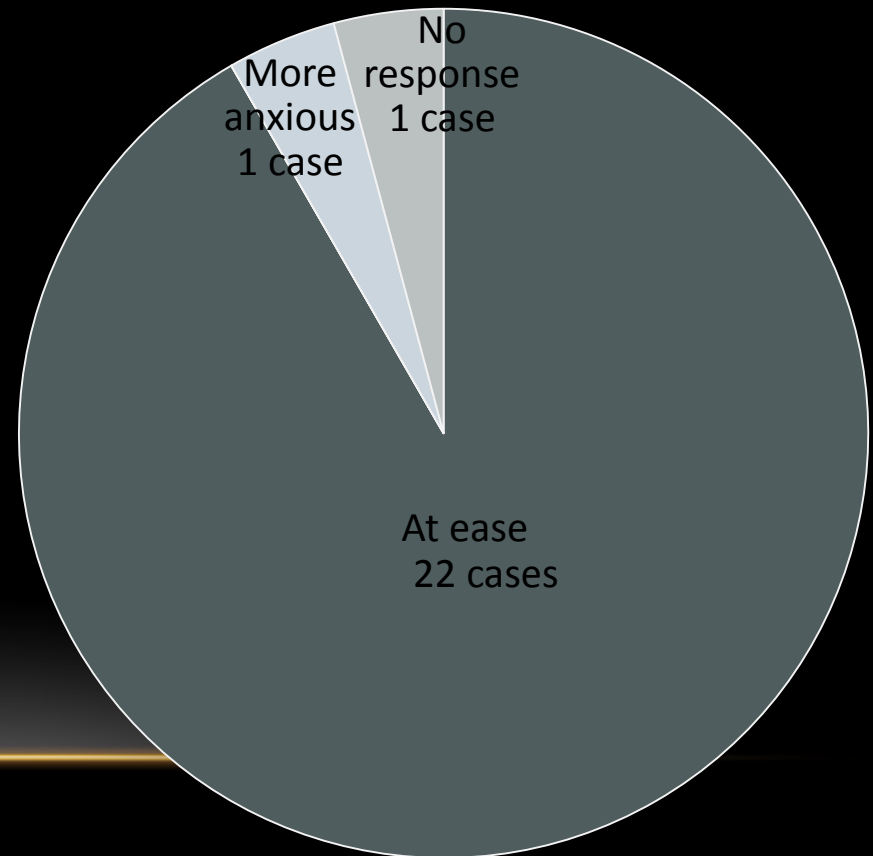


MENTALITY BEFORE & AFTER TREATMENT (LEVEL OF ANXIETY)

Before treatment

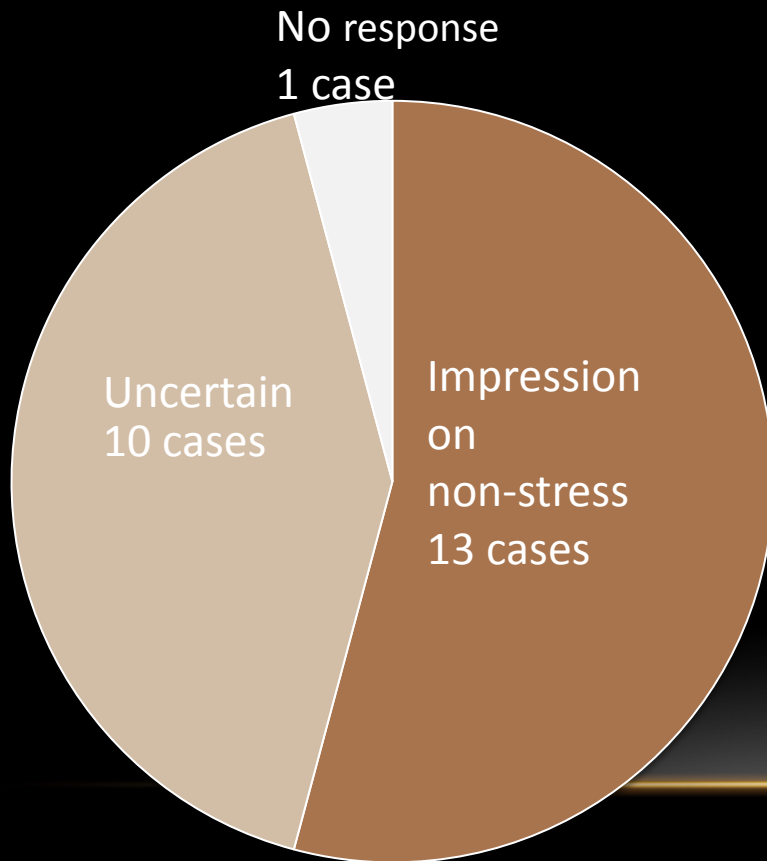


After treatment

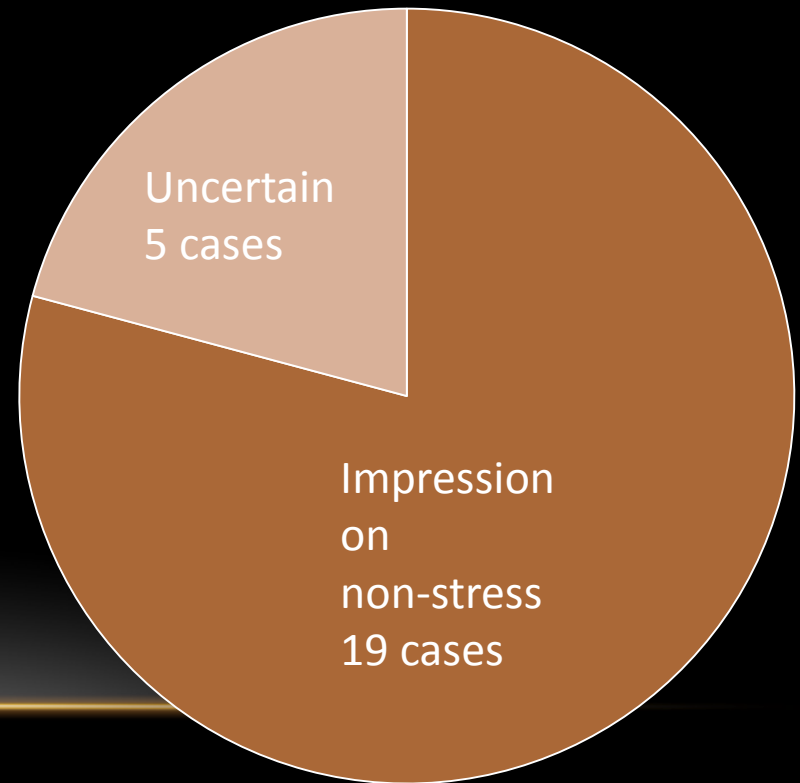


FEELING FOR PHYSICAL BURDEN BEFORE AND AFTER TREATMENT

Before treatment

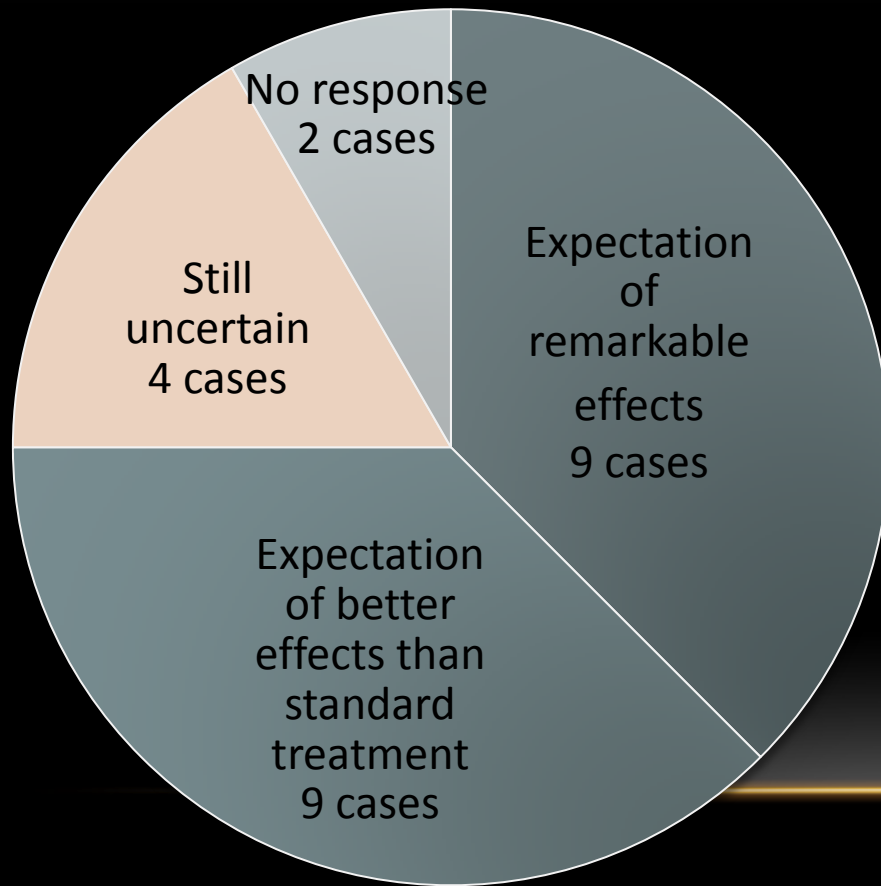


After treatment

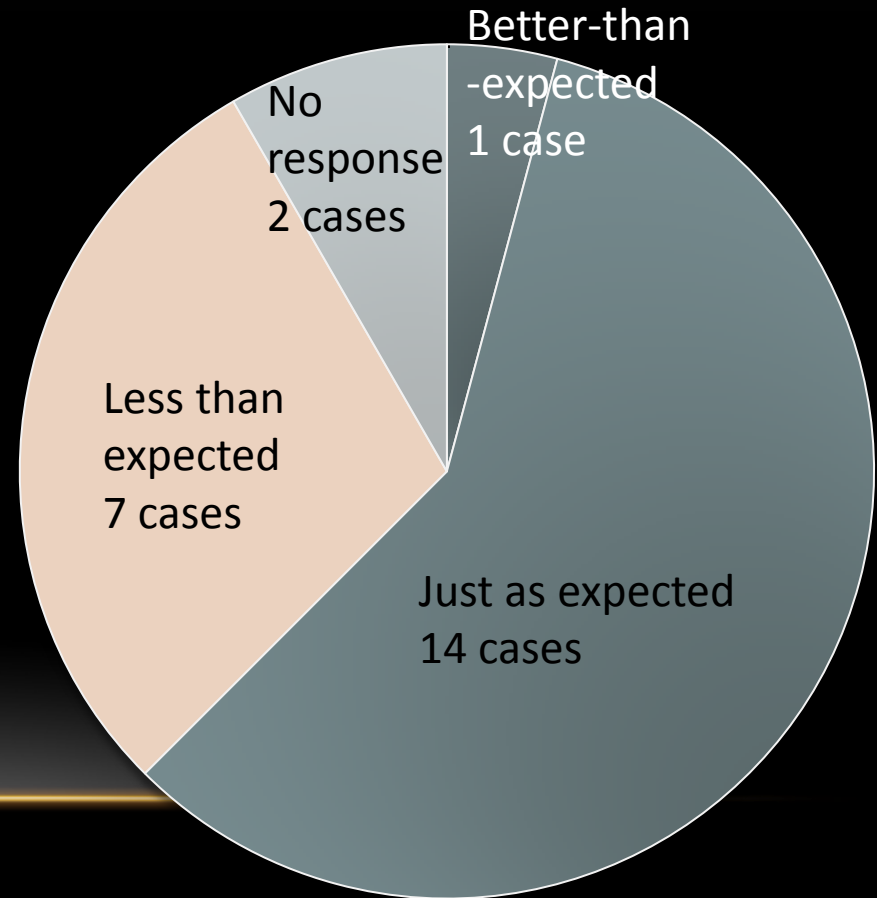


MENTALITY FOR EXPECTED EFFECTS BEFORE AND AFTER TREATMENT.

Before treatment



After treatment



INSTANCES OF IMPROVEMENT OF SUBJECTIVE SYMPTOMS

Following effects were felt by treatment
(13 responses in 24)

◆ Stiff shoulders were improved	5
◆ Skin tone & coloring became clear	5
◆ The eyesight became clear	4
◆ Cold extremities were improved	4
◆ Can drink alcohol more than before	4
◆ Breathlessness has been improved	3
◆ Get better feeling, lassitude was gone	2
◆ Sleep better	1
◆ Headache was improved	1
◆ Joint pain was improved (phalangeal joint)	1
◆ Cramp in the leg was gone	1

SYMPTOMS AFTER TREATMENTS

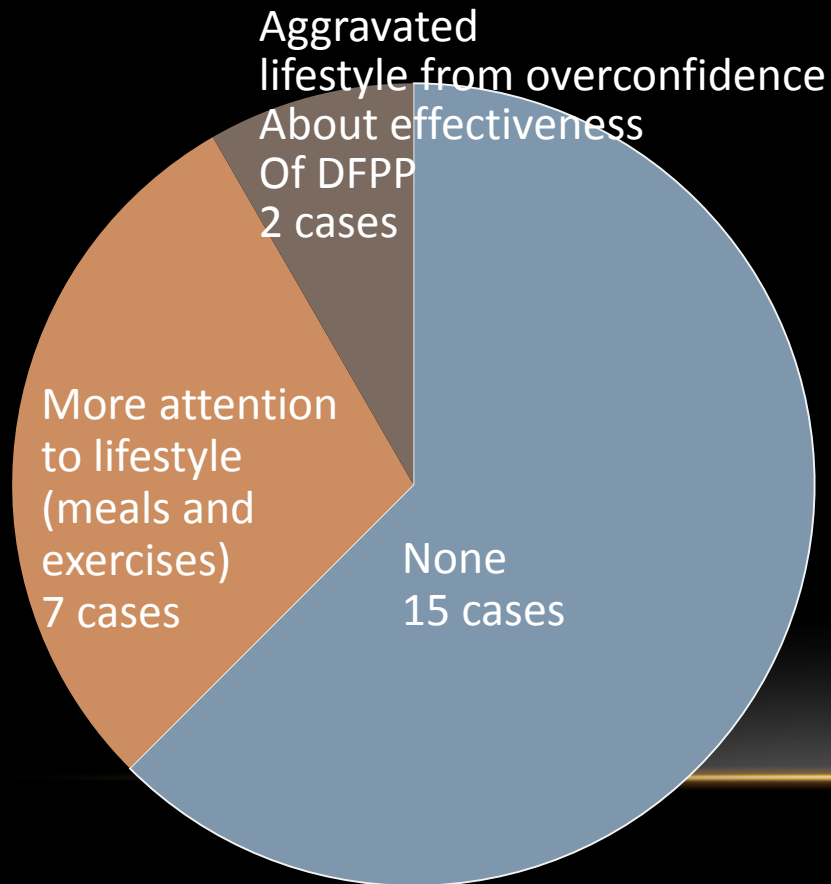
Side effects were recognized transiently
(3 responses in 24)

- ◆ Lassitude (2 people)
 - ◆ Rash (1 people)
 - ◆ Pain in lumbar and arm (1 people)
 - ◆ Palsy in the fingers (1 people)
- } Same patient

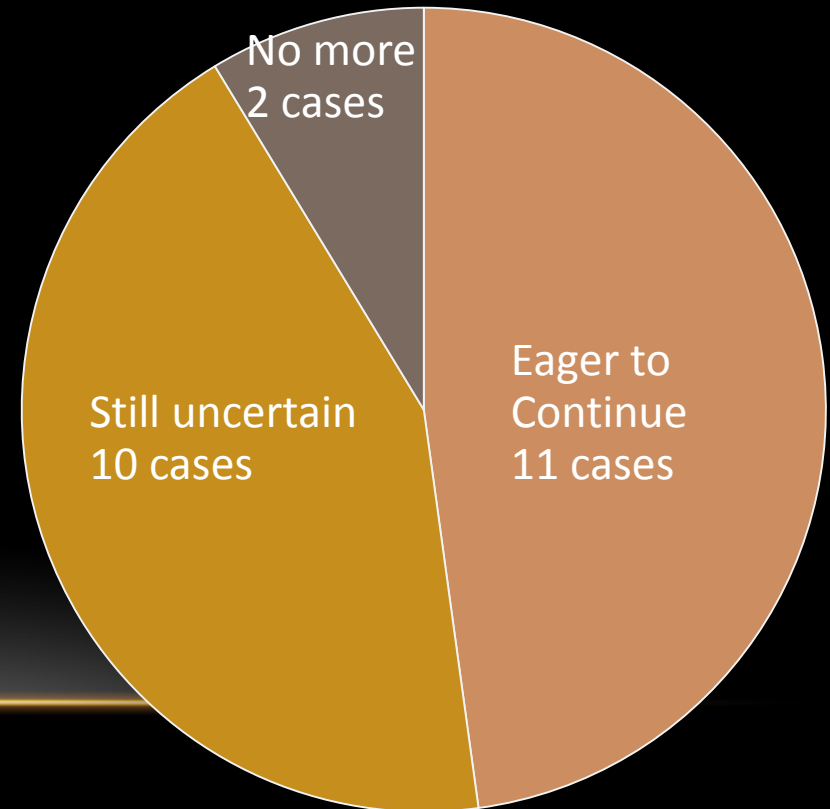
AFTER TREATMENT

BY CHANCE OF PREVENTIVE APHERESIS, LIFESTYLE IMPROVEMENT WAS 29%. 45% OF RECIPIENTS HOPE CONTINUAL TREATMENTS. (87% INCLUDING UNCERTAIN PATIENTS)

Changes in lifestyle



Wish of continuance



CONCLUSION

- ◆ 69 treatments were conducted (120 in total) for 15 months from July, 2011 through September, 2012 without any adverse events.
 - ◆ Out of 69 cases, 24 returned the opinionaire (response rate : 34.7%), high response rate was seen among repeaters.
 - ◆ The main purpose of treatment was to prevent blood vessel from aging. Significant improvements were recognized in lipid and inflammation markers and vascular endothelial function. Furthermore, changes in physical symptoms, which might possibly be associated with improved blood flow, and lifestyle improvements were also observed.
 - ◆ We found that the patients expressed great satisfaction and desire to continue treatment at their own expenses for non-reimbursable DFPP. It may suggest the presence of some demand for apheresis as a preventive measure in the non-reimbursement area.
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DISCUSSION

- ◆ Improvements were observed not only in laboratory data but also in physical symptoms and immediate therapeutic effects, which may be responsible for lifestyle improvements and motive for medication in some patients. Therefore, DFPP can be served as one of the treatment options adjuvant to standard treatment as well as early prevention of lifestyle-related diseases.
 - ◆ As for future work, studies with a specific protocol on the implications of DFPP as a preventive measure in lifestyle-related diseases would be of great help to expand the application of apheresis in the treatment area.
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