

Pacemaker Trend in Korea

가톨릭의대
노태호

우선 다른 나라에서는?

Europe, 1st Implant

2001 World Registry

no/million : 22 nations

- – 100 : 2 (Georgia 27, Russia 76)
- 100 – : 0
- ***200 – 600 : 19***
- 700 – : 0
- 800 – : 1 (Germany)

America, 1st Implant

2001 World Registry

- **US 786** /million
- **Canada 591**
- **Uruguay 362**
- **Argentina 250**
- **Brazil 89**
- **Panama 60**
- **Peru 22**

Mid East, 1st Implant

2001 World Registry

- **Israel 335** /million
- Iran 24
- S Africa 40

Asia, 1st Implant

2001 World Registry

- **Japan 210** /million
- **HK 143**
- **Taiwan 102**
- **Singapore 92**
- **S Korea 26**
- **Malaysia 19**
- **Australia 486, NZ 245**

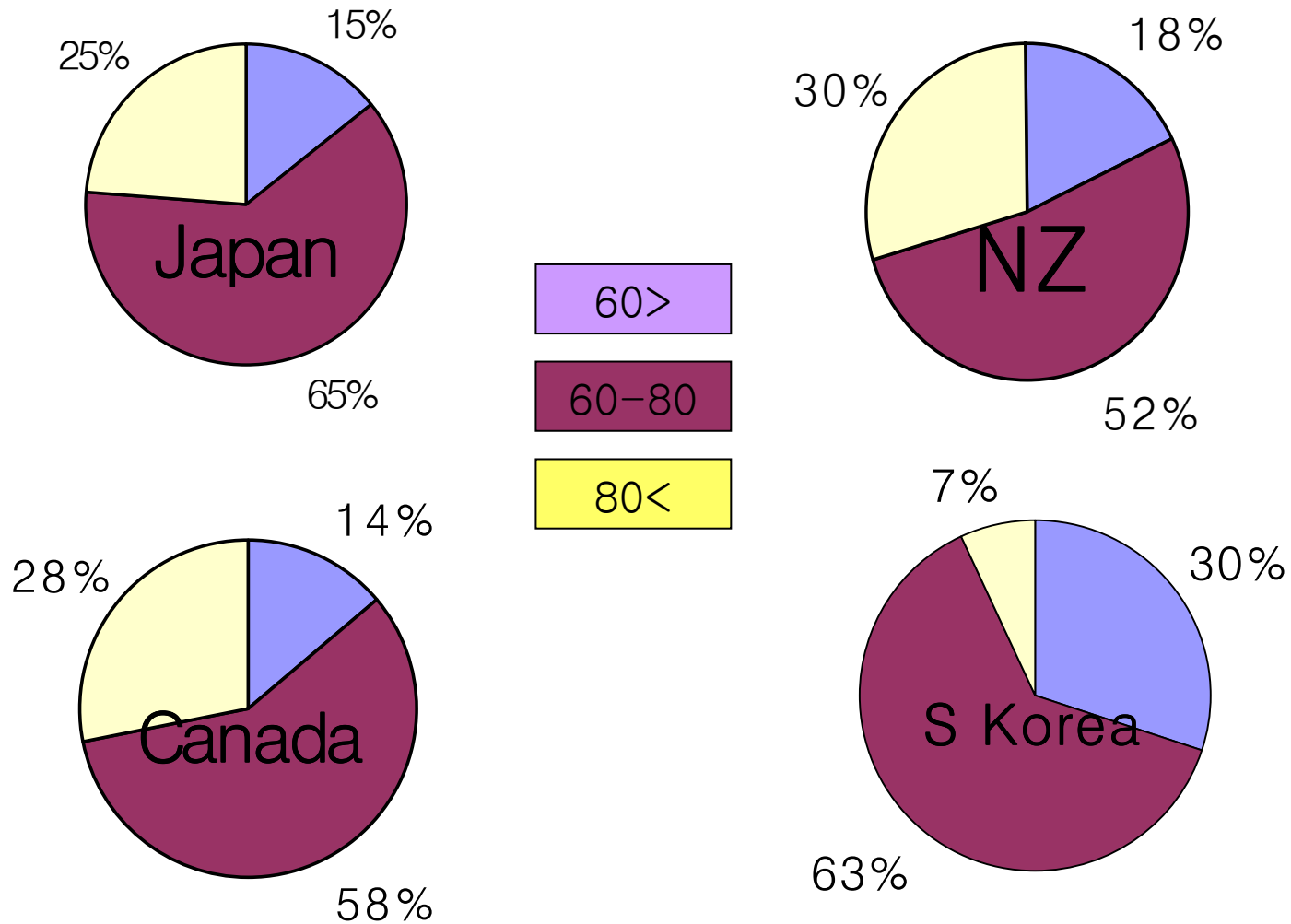
Age at 1st Implant

2001 World Registry

	male	female	>60	>80	/million
Japan	70	73	85 %	25 %	210
NZ	69	72	82 %	30 %	245
Canada	71	74	86 %	28 %	591
<i>S Korea</i>	<i>62</i>	<i>66</i>	<i>70 %</i>	<i>7 %</i>	<i>26</i>

Age at 1st Implant

2001 World Registry



Age at 1st Implant

2001 World Registry

한국에서는 80세 이상 : 7% 차지

Europe에서는 80세 이상 : 27-46% 차지

80세 이상이 10 % 미만인 국가 : Georgia, India, Malaysia, Ecuador

AV block proportion

2001 World Registry

Europe 32–54%

Croatia 53, Slovak 54, Slovenia 50, Spain 53,

그 외 32–47%

Asia/Pacific

HK 39, Korea 49, Taiwan 42

그 외 50% 이상

일본 50, NZ 56, Singapore 53, Thailand 53%

AV block proportion

2001 World Registry

Mid East

Israel 57, Iran 71, S Africa 46%

America

Argentina 56, Uruguay 55, Canada 44%

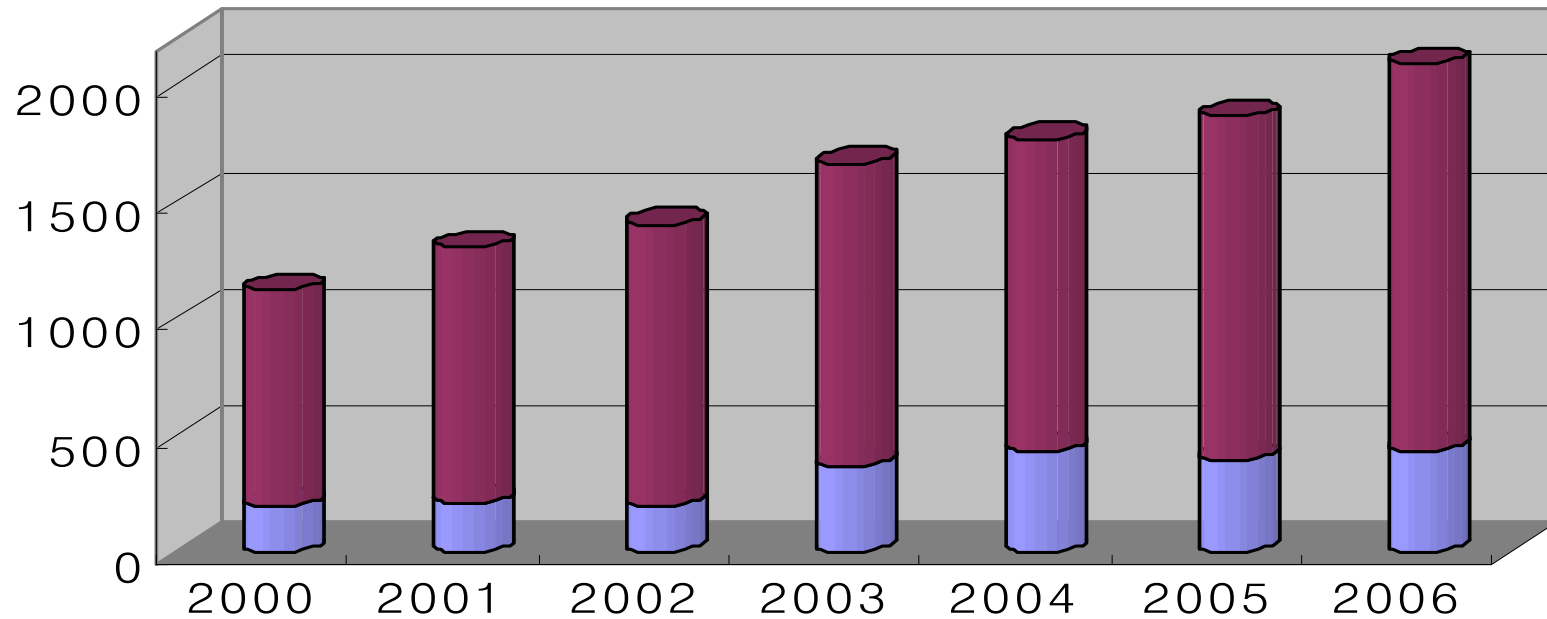
나라간 비교

2001 World Registry

	A	B	C	D
인구(백만)	41	45	21	127
병원수	145	65	22	2700
implants/yr	16421	1162	2290	26700
no/million	399	26	102	210

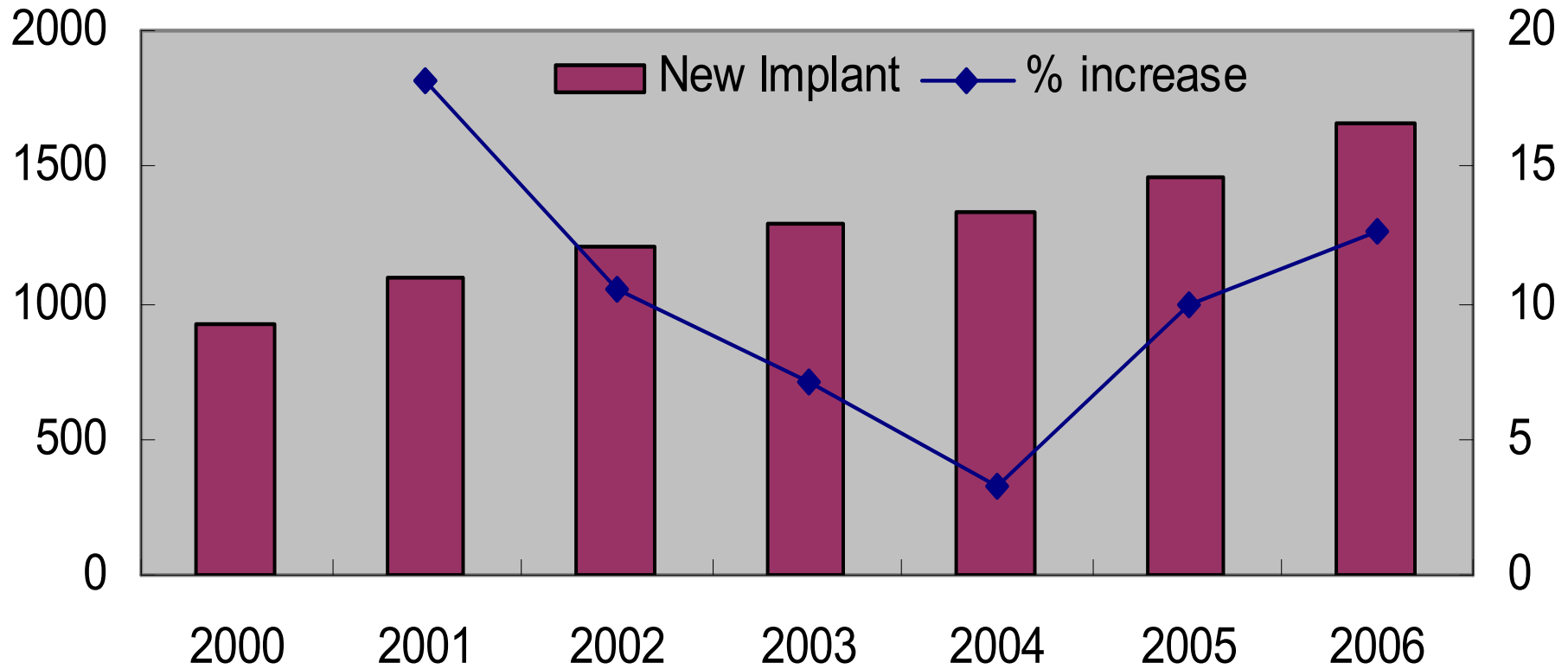
그러면 **우리나라**는?

Pacemaker Trend in Korea 2000–2006



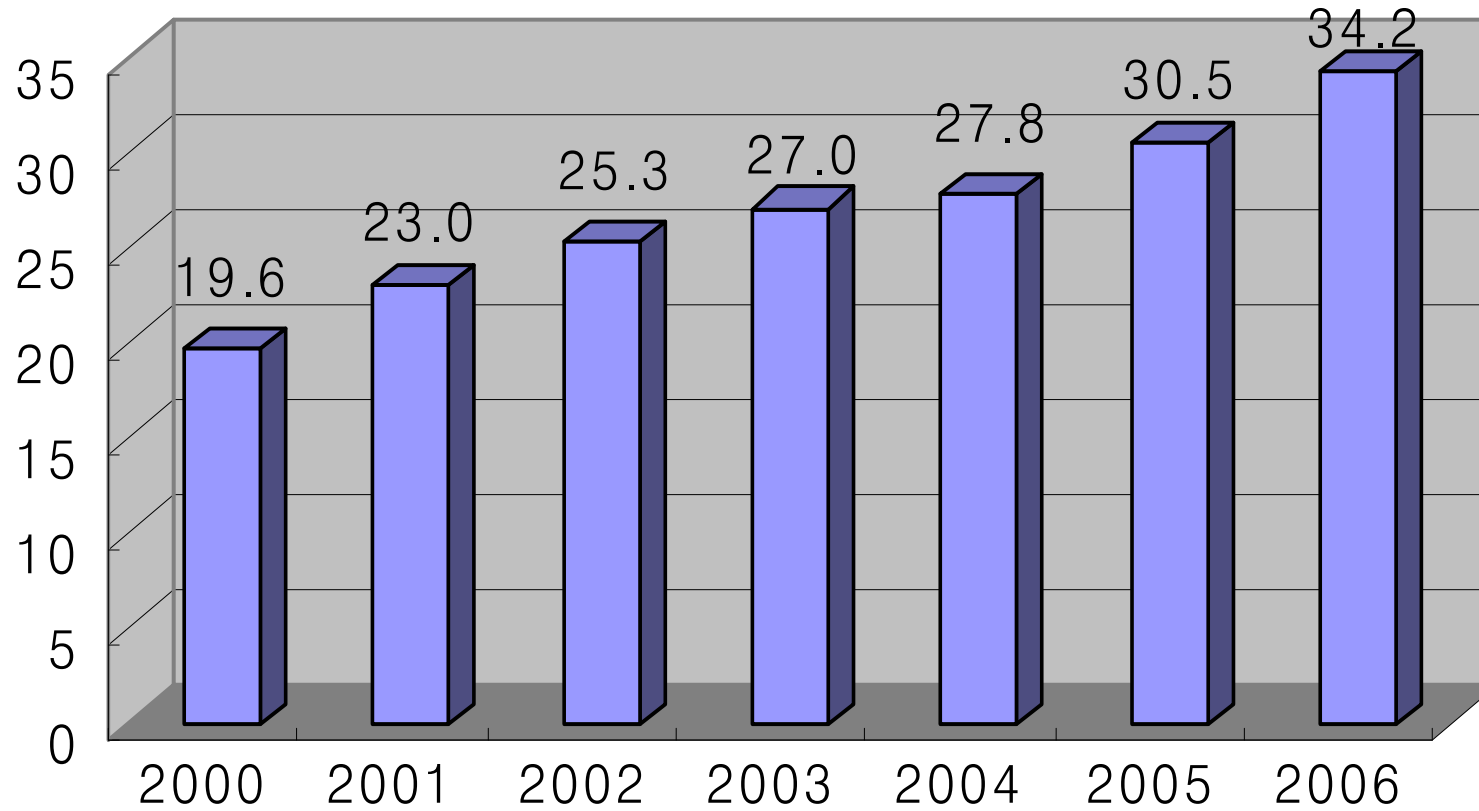
no.total	1120	1303	1399	1662	1767	1863	2087
no.1st	923	1091	1206	1292	1335	1468	1653
no..repl	197	212	193	370	432	395	434

1st Implant 2000–2006



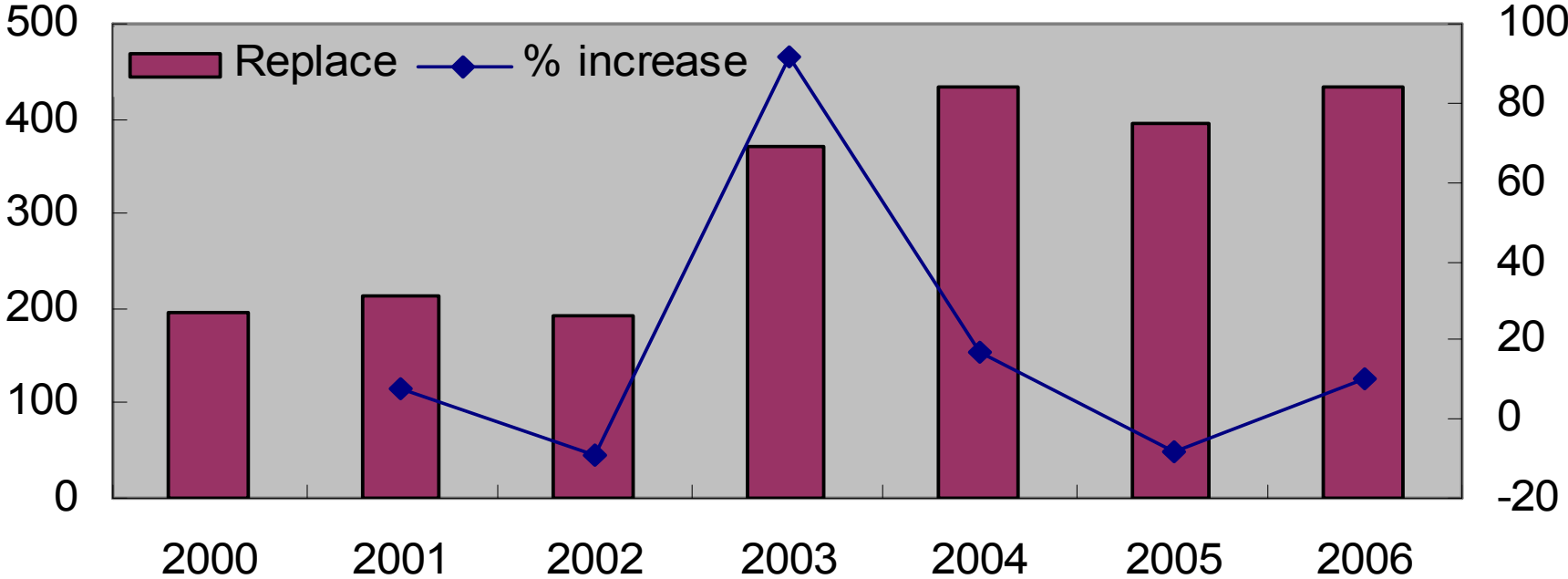
no.1st	923	1091	1206	1292	1335	1468	1653
% incre		18.2	10.5	7.1	3.3	10.0	12.6

1st Implant/million 2000-2006



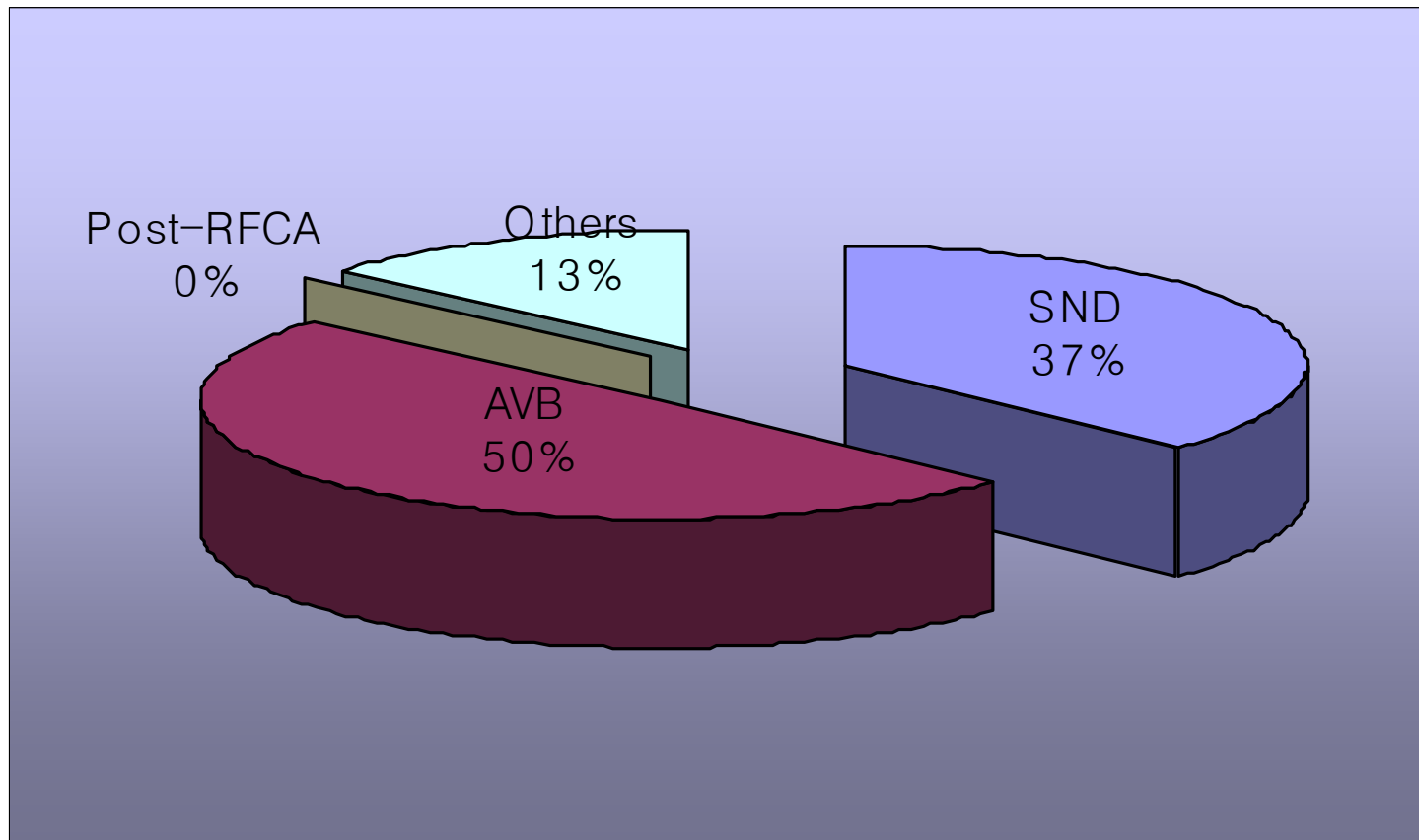
no.1st	923	1091	1206	1292	1335	1468	1653
인구(백만)	47.0	47.4	47.6	47.8	48.0	48.1	48.3

Replacement 2000–2006

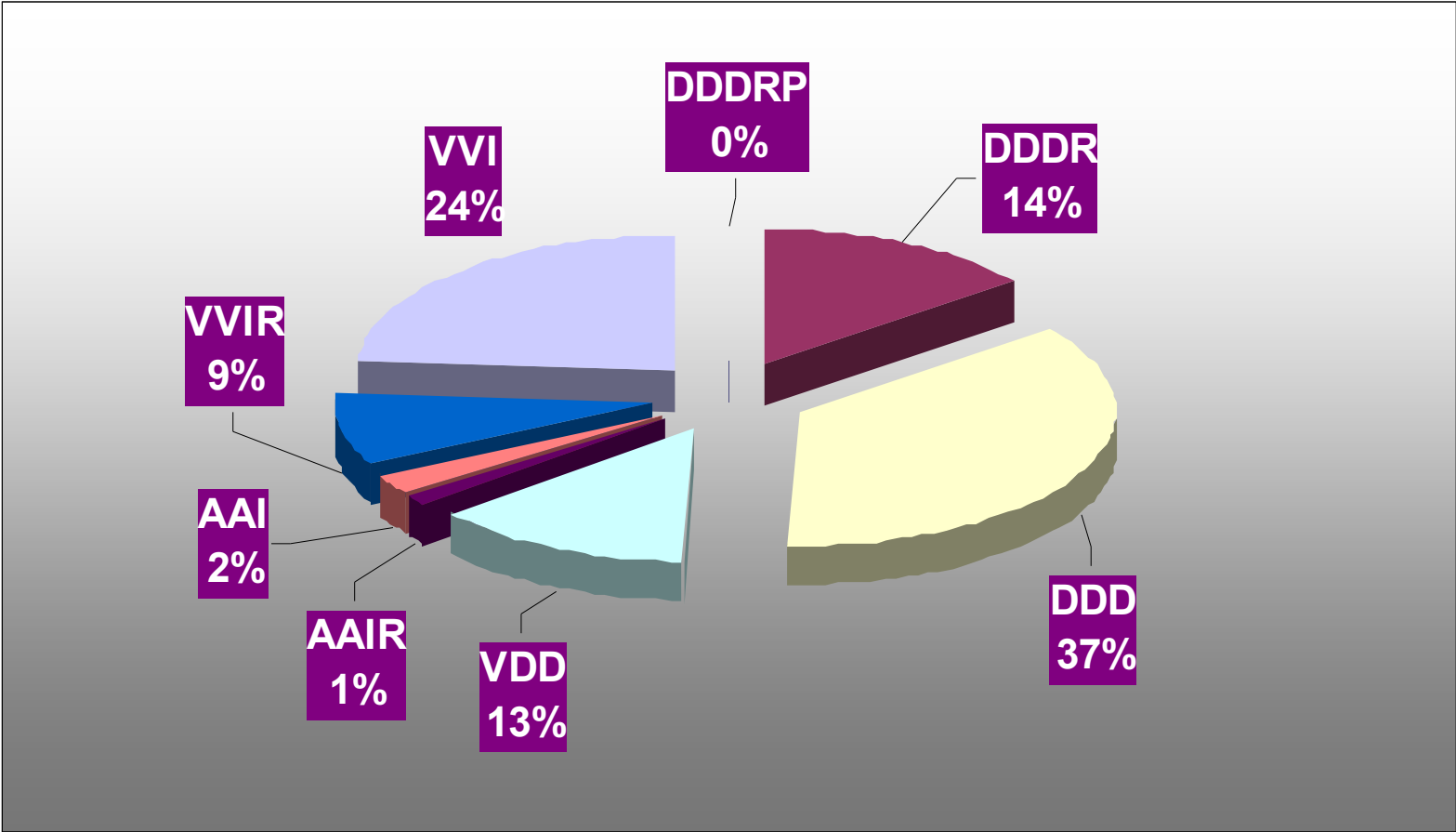


no.repl	197	212	193	370	432	395	434
% incre		7.6	-9.0	91.7	16.8	-8.6	9.9

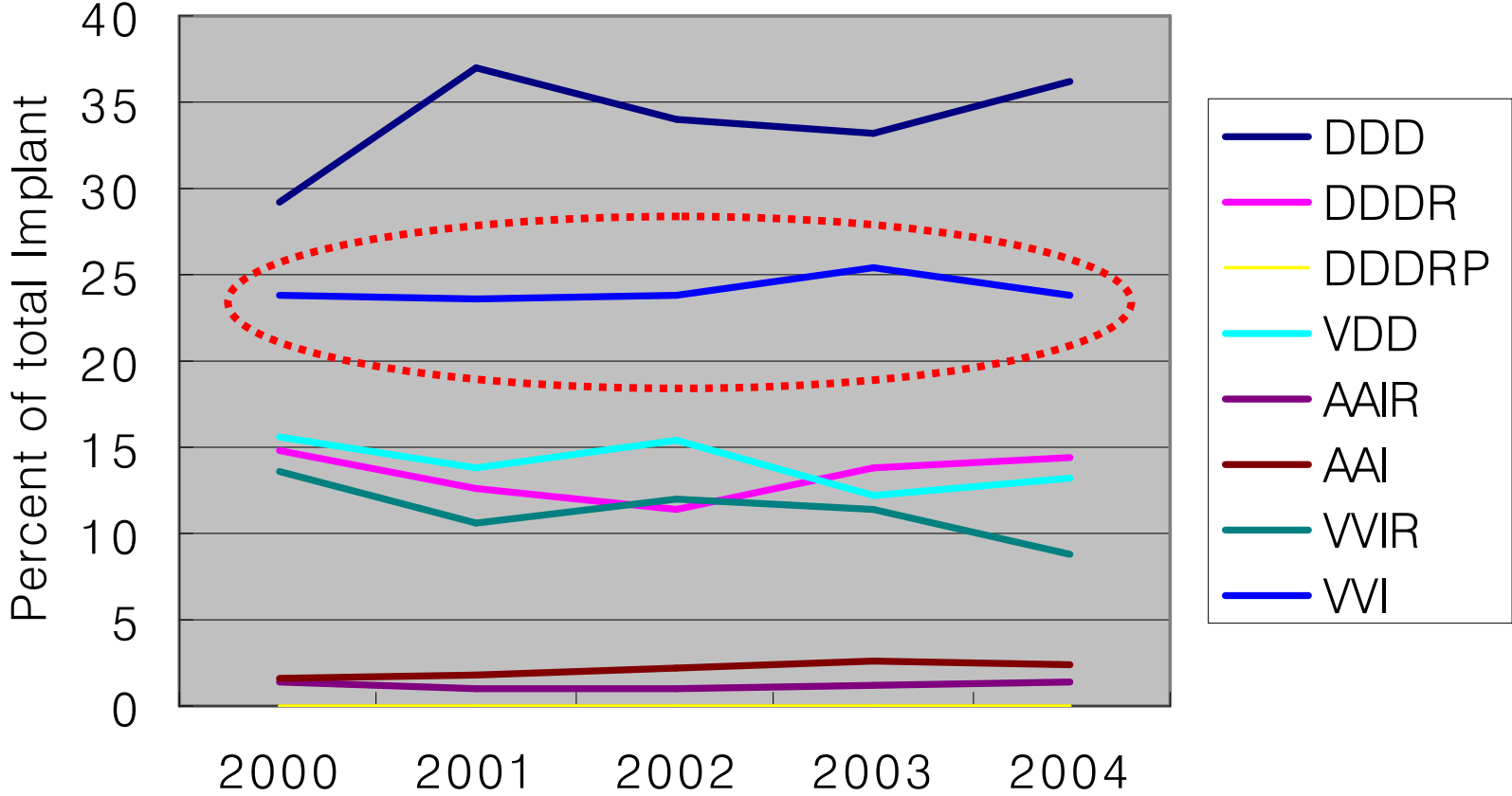
Indications for 1st Implant 2004



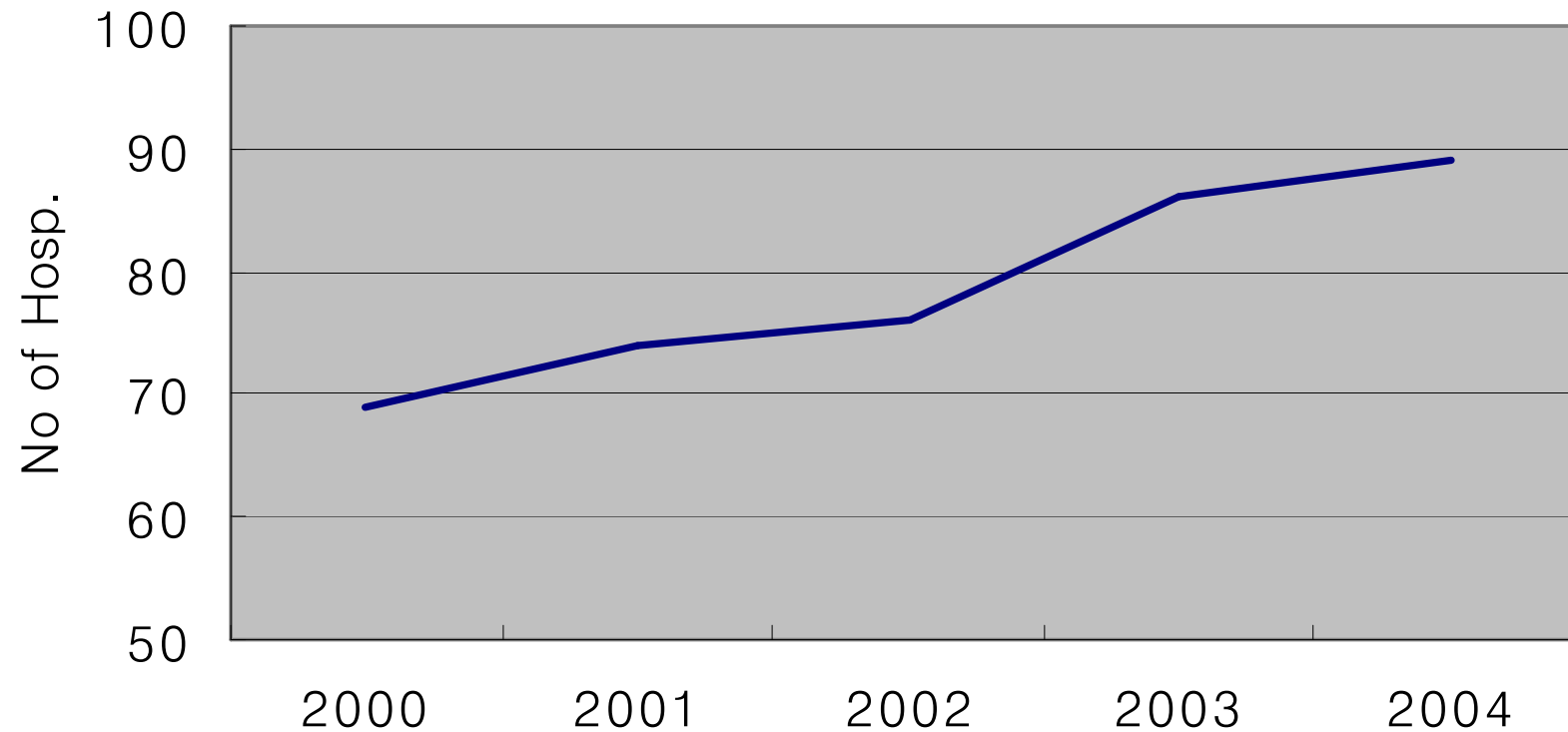
Mode Mix 2004



Mode Mix total %, 2000–2004



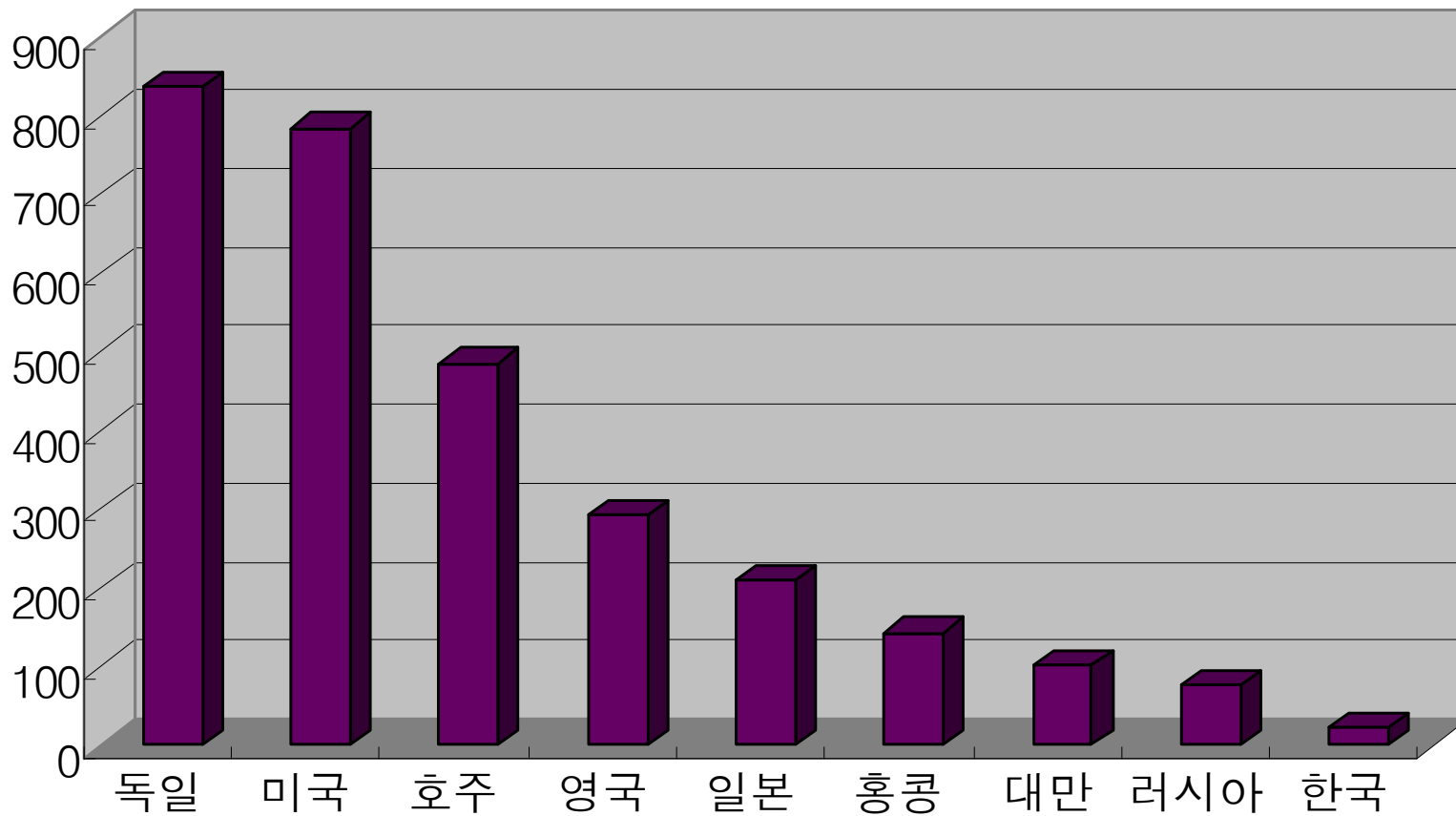
Implanting Hospitals 2000–2004



No of Implants in 2001, World-Wide

2001 World Registry

No. of Implant per Million Population in 2001



한국의 심박동기이식 특징

- 매우 낮은 PM Use (34/million 2006)
- 증가는 한다 (1st implant 45%/5yr)
- 시술 기관수 : 충분 (90곳)
- 시술 대상 : 상대적 젊은 연령군

한국의 심박동기이식 특징

- 질환 : AVB 비율감소(56->49%)
SND 증가는 불분명 (39->37%)
- Mode mix는 선진국형 (DDD+DDDR>50%)
(VVI는 여전히 25% 차지, R-mode 사용저조)

우리나라에는 왜 이렇게 적은가 ?

- Low socioeconomic condition
- Population profile
- Physician attitude
- Culture
- Patient recognition
- Reimbursement problem
- ? Low incidence of conduction system disorder

우리나라에는 왜 이렇게 적은가 ?

- **Low Socioeconomic Condition**

Europe: 몇몇 나라의 예 (Georgia 27, Russia 76)

Asia: Japan vs Malaysia (210 vs 19)

Mid East: Israel vs Iran (335 vs 24)

S Africa: white vs black

South Africa 1995–1998

Table III. Differences between public and private hospitals

	Public hospitals		Private hospitals	
	1995	1998	1995	1998
Race of recipient (%)				
Black	34.3	36.8	1.5	4.1
White	42.1	28.6	94.5	88.3
Coloured	14.8	24.2	0	4.5
Asian	8.9	10.4	4.1	3.1
Indication for pacing (%)				
AV block	63.8	75.3	48.7	45.3
Sinus node dysfunction	29.2	16.2	38.5	34.9
AV node ablation	—	5.3	—	15.8
Other	7.2	6.3	12.8	7.6
Pacemaker type (%)				
AAI/R	—	0.4	—	1.2
VVI	35.0	49.8	19.6	9.6
VVIR	21.5	23.2	23.7	34.9
VDD	14.8	14.5	17.1	10.9
DDD/R	26.3	12.1	38.3	42.3

우리나라에는 왜 이렇게 적은가 ?

· Population Profile

>80; 7% (Korea)

Europe 27-46%

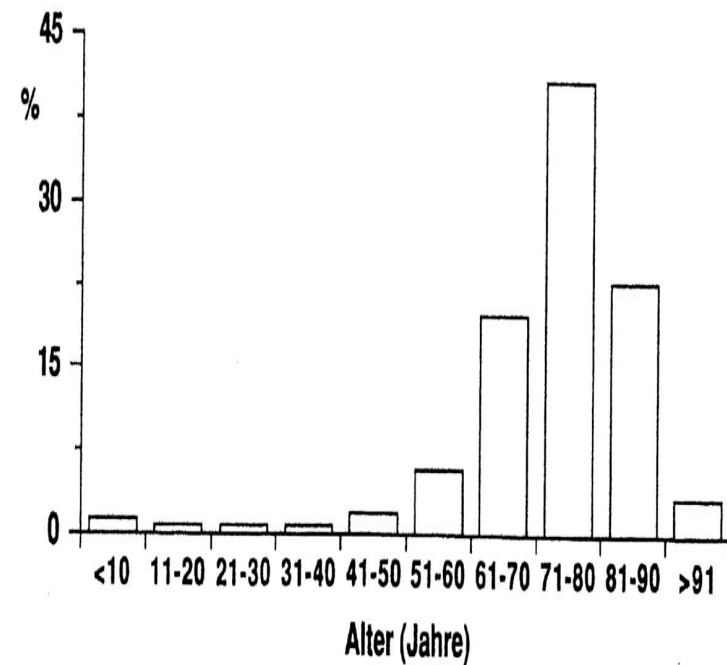


Abb. 2. Altersverteilung der Patienten im Jahr 1991 (Erstimplantationen).

우리나라에는 왜 이렇게 적은가 ?

- **Physician Attitude**

implant에 대해 덜 적극적

education & practice

reimbursement problem

우리나라에는 왜 이렇게 적은가 ?

- Culture

고령층의 유교사상

순명적, 희생적인 인생관

기계삽입의 저항감

우리나라에는 왜 이렇게 적은가 ?

- Patient Recognition

증상을 인지함이 부족

PM로 도움을 받을 수 있음을 모름

우리나라에는 왜 이렇게 적은가 ?

- Reimbursement Problem

실제 보험문제는 상당부분 감소

“*conditioned*” physicians?

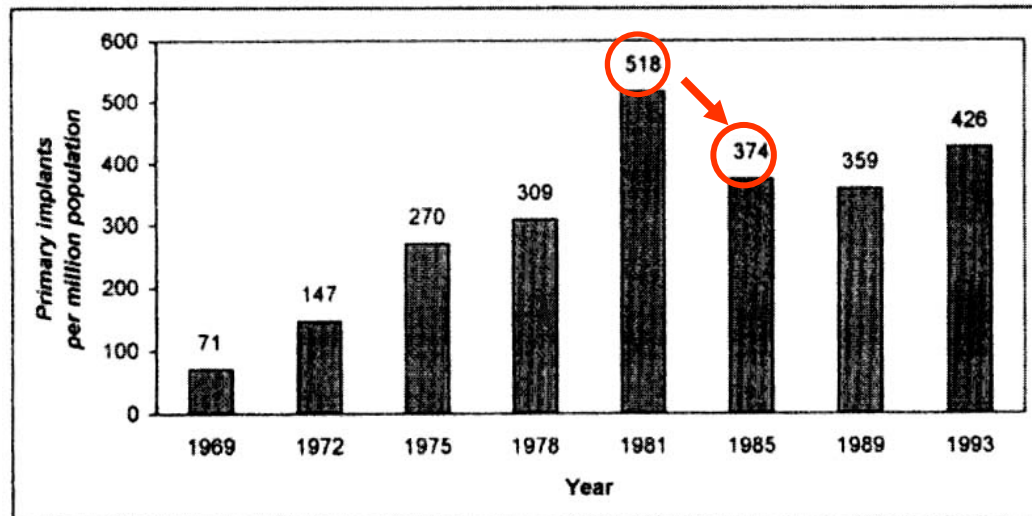


FIGURE 1. Trend in primary pacemaker implantation over a 24-year period.¹⁻⁸

우리나라에는 왜 이렇게 적은가 ?

- ? Low Incidence of Conduction System Disorder

- Japan vs Europe

Japan; 210

HK; 143

Singapore; 92

Taiwan; 102

- Europe

100–: 0

200–: 6

300–: 4

400–: 4

500–: 2

600–: 3

700–: 0

800–: 1

우리나라에는 왜 이렇게 적은가 ?

- *AV block이 우리나라 사람에게 적게 발생하는가?*
- 일본 210/mil 의 50% - 105/mil
- 한국 26/mil 의 49% - 13/mil

우리나라에는 왜 이렇게 적은가 ?

· *그러면 LBBB도 적은가?*

-Italian study (*Am Heart J 2002*) – 25.2% of LBBB in CHF

-Indian study (*Indian Heart J 2004*) –10.7% of CHF pts

-41/152 idiopathic DCMP had LBBB (*Am J Cardiol 1987*)

-25% of DCM pts had LBBB (*PACE 2003*)

“Among 762 in-patients d/t heart failure, only 55(7.1%) had LBBB.” (노태호 외 2006)

**심장이 튼튼한
우리나라 좋은 나라**

자료를 제공해 주신
기업관계자에게 감사 드립니다.