

Surgery for valvular heart defects

Table 6 presents information about valve surgery performed from 1985 to 1994, and Table 7 gives more detailed figures for 1994 alone. There was a slight increase of 3.8% in operations for valve defects between 1993 and 1994. This was due to an increase in surgery to the aortic valve (5.3% increase) and the mitral valve (3.3% increase). Surgery to the tricuspid valve fell (21.7% decrease) and surgery to the pulmonary valve remained steady. Of the various procedures used, the number of valve repairs decreased by 8.9%. Numbers of valve replacements by prosthesis and homograft rose by 10.3% and 41.2% respectively, and those by heterograft fell by 10.4%.

In 1994 there were 59 reoperations for mechanical valve failures, with 4 deaths, and 130 reoperations for tissue valve failures, with 8 deaths.

Figures 4 and 5 illustrate the trends in valve surgery over time. Most valve surgery is done on the aortic and mitral valves, with a marked increase in the number of procedures over the last decade. There has been a significant rise in the number of procedures involving replacing the damaged valve with a prosthesis, but other types of valve procedures have only increased modestly.

Table 6: Operations for valve defects by type of valve and procedure, 1985–94

| | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 |
|---------------------------------|-----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Valve | (Number) | | | | | | | | | |
| Mitral | 812 | 843 | 928 | 932 | 987 | 963 | 1,075 | 1,188 | 1,346 | 1,391 |
| Aortic | 1,083 | 1,143 | 1,270 | 1,371 | 1,489 | 1,589 | 1,772 | 1,873 | 2,075 | 2,186 |
| Tricuspid | 52 | 51 | 46 | 46 | 67 | 62 | 51 | 73 | 106 | 83 |
| Pulmonary | 27 | 32 | 20 | 33 | 19 | 25 | 21 | 25 | 25 | 26 |
| Total | 1,974 | 2,069 | 2,264 | 2,382 | 2,562 | 2,639 | 2,919 | 3,159 | 3,552 | 3,686 |
| Type of surgery | | | | | | | | | | |
| Repair ^a | 398 | 355 | 362 | 371 | 405 | 461 | 477 | 590 | 661 | 602 |
| Replacement | | | | | | | | | | |
| Prosthesis | 1,067 | 1,182 | 1,370 | 1,378 | 1,523 | 1,534 | 1,778 | 1,861 | 2,136 | 2,355 |
| Homograft | 20 | 19 | 42 | 76 | 83 | 132 | 111 | 108 | 102 | 144 |
| Heterograft | 489 | 513 | 490 | 557 | 551 | 512 | 553 | 600 | 653 | 585 |
| <i>Total replacement</i> | <i>1,576</i> | <i>1,714</i> | <i>1,902</i> | <i>2,012</i> | <i>2,157</i> | <i>2,178</i> | <i>2,442</i> | <i>2,569</i> | <i>2,891</i> | <i>3,084</i> |
| Reoperations^b | | | | | | | | | | |
| Tissue valve | 38 | 57 | 92 | 105 | 111 | 101 | 151 | 191 | 111 | 130 |
| Mechanical valve | 9 | 27 | 31 | 33 | 39 | 32 | 34 | 44 | 37 | 59 |

^a Repair = valvotomy and reconstruction, as in Table 7.

^b Not all units gave details on valve reoperations.

Table 7: Operations for valve defects by type of valve and procedure, 1994

| Valve | Procedure | Congenital | | | | Acquired | | | | | | Overall total | |
|--------|---------------------------|------------|------|--------|------|----------|------|--------|------|-------|------|---------------|------|
| | | Single | | Single | | Double | | Triple | | Total | | | |
| | | No. | Dths | No. | Dths | No. | Dths | No. | Dths | No. | Dths | No. | Dths |
| Mitral | Valvotomy | 2 | 0 | 18 | 0 | 8 | 2 | — | — | 26 | 2 | 28 | 2 |
| | Reconstruction | | | | | | | | | | | | |
| | with support ring | — | — | 286 | 7 | 11 | 1 | 1 | 0 | 298 | 8 | 298 | 8 |
| | without ring | — | — | 141 | 4 | 10 | 0 | — | — | 151 | 4 | 151 | 4 |
| | not specified | 13 | 0 | — | — | — | — | — | — | — | — | 13 | 0 |
| | Replacement | | | | | | | | | | | | |
| | heterograft | — | — | 57 | 7 | 14 | 3 | 1 | 0 | 72 | 10 | 72 | 10 |
| | prosthesis | 9 | 0 | 613 | 28 | 189 | 11 | 6 | 0 | 808 | 39 | 817 | 39 |
| | mitral homograft | — | — | 7 | 2 | 4 | 0 | — | — | 11 | 0 | 11 | 2 |
| Aortic | Reconstruction | | | | | | | | | | | | |
| | valvotomy | 13 | 1 | 3 | 0 | 2 | 0 | — | — | 5 | 0 | 18 | 1 |
| | decalcification | — | — | 4 | 0 | 2 | 0 | — | — | 6 | 0 | 6 | 0 |
| | for regurgitation | — | — | 5 | 0 | 2 | 0 | — | — | 7 | 0 | 7 | 0 |
| | other/unstated | 6 | 0 | 2 | 0 | 1 | 0 | — | — | 3 | 0 | 9 | 0 |
| | Replacement | | | | | | | | | | | | |
| | homograft not specified | 7 | 1 | — | — | — | — | — | — | — | — | 7 | 1 |
| | classical homograft | — | — | 78 | 1 | 1 | 0 | — | — | 79 | 1 | 79 | 1 |
| | 'mini root' homograft | — | — | 24 | 0 | 2 | 0 | — | — | 26 | 0 | 26 | 0 |
| | 'mini root' heterograft | — | — | 44 | 2 | 4 | 0 | — | — | 48 | 2 | 48 | 2 |
| | stent mounted heterograft | — | — | 441 | 18 | 16 | 2 | 2 | 0 | 459 | 20 | 459 | 20 |
| | pulmonary autograft | — | — | 5 | 0 | — | — | — | — | 5 | 0 | 5 | 0 |
| | prosthesis | 7 | 0 | 1,340 | 51 | 169 | 11 | 6 | 0 | 1,515 | 62 | 1,522 | 62 |

(continued)

Table 7 (continued): Operations for valve defects by type of valve and procedure, 1994

| Valve | Procedure | Congenital | | | | Acquired | | | | | | Overall total | | |
|-----------|-----------------------|-------------------|----------|--------------|------------|------------|-----------|-----------|----------|--------------|------------|---------------|------------|-------|
| | | Single | | No. | Dths | No. | Dths | No. | Dths | No. | Dths | | | Total |
| | | No. | Dths | | | | | | | | | No. | Dths | No. |
| Tricuspid | Reconstruction | with support ring | — | — | 6 | 0 | 5 | 0 | 2 | 0 | 13 | 0 | 13 | 0 |
| | | without ring | — | — | 8 | 1 | 26 | 0 | 5 | 0 | 39 | 1 | 39 | 1 |
| | | not specified | 5 | 0 | — | — | — | — | — | — | — | — | 5 | 0 |
| | Replacement | heterograft | — | — | 3 | 0 | 3 | 1 | — | — | 6 | 1 | 6 | 1 |
| | | homograft | — | — | 4 | 0 | — | — | — | — | 4 | — | 4 | 0 |
| | | prosthesis | 1 | 0 | 6 | 1 | 8 | 3 | 1 | 0 | 15 | 4 | 16 | 4 |
| Pulmonary | Valvotomy | 13 | 0 | — | — | — | — | — | — | — | — | 13 | 0 | |
| | Reconstruction | 2 | 0 | — | — | — | — | — | — | — | — | 2 | 0 | |
| | Replacement | homograft | 8 | 1 | 3 | 0 | — | — | — | — | 3 | 0 | 12 | 1 |
| | Total valves | 86 | | 3,098 | | 478 | | 24 | | 3,600 | | 3,686 | | |
| | Total patients | 86 | 3 | 3,098 | 122 | 239 | 17 | 8 | 0 | 3,345 | 139 | 3,431 | 142 | |

