



Detection of adolescent idiopathic scoliosis

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The aim of our study was to evaluate the current methods of detection of adolescent idiopathic scoliosis. Data were collected from 100 consecutive patients with adolescent idiopathic scoliosis referred to the Scoliosis clinic in 2000. The age of the patient, the Cobb angle at presentation and the person who first noticed the deformity were recorded. Sixty three percent of the cases were detected by family or friends. The number of cases being detected at school had dropped considerably to 8%. Fifty six percent of all cases presented with a Cobb angle of more than 40°. Our study shows that the most common method of detection was by family and friends. Seventy percent of these cases were detected when the deformity was advanced with Cobb angles of more than 40°. There was a drop in the number of cases detected at school when most of the curves are at an earlier stage. We believe that greater awareness is needed in the community, for earlier recognition of idiopathic scoliosis.

Keywords : scoliosis ; idiopathic ; diagnosis.

INTRODUCTION

The prevalence of idiopathic scoliosis for curves of more than 10 degrees is 2% (15). Adolescent idiopathic scoliosis is detected by various means. The aim of our study was to evaluate the most common method of detection of adolescent idiopathic scoliosis and the Cobb angle at presentation to the scoliosis clinic at our institution. The current results were compared with the previous studies conducted at the same centre in 1976 (3) and in 1985 (8).

PATIENTS AND METHODS

Data were collected from 100 consecutive patients with adolescent idiopathic scoliosis, who were referred to the Scoliosis Clinic at University College Hospital, London in 2000.

The following indices were recorded :

1. The age when the deformity was first noted.
2. The Cobb angle at the time of diagnosis.
3. The person who first detected the deformity.

The patients were divided into various groups as follows

- Group 1 detected by family and friends.
- Group 2 detected by the general practitioner (GP) or incidentally by another doctor.
- Group 3 detected by school screening (SS).
- Group 4 detected by teachers mainly physical education (PE) teachers.

RESULTS

There were 81 females and 19 males with a mean age of 13.8 years (range 10-16). Group 1

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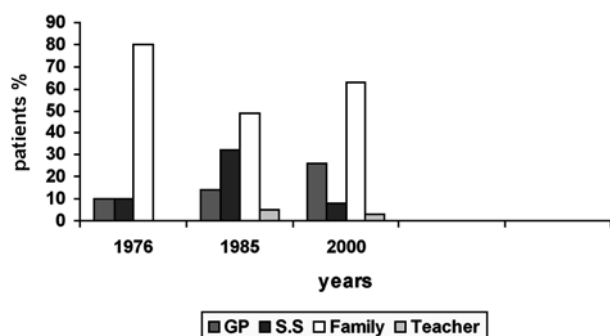


Fig. 1. — Percentage of patients detected by various groups in 1976, 1985 & 2000.

included 63% of the patients, Group 2 included 26%, Group 3 included 8%, while Group 4 consisted of 3% of the patients. The range of Cobb angles at the time of presentation was 10°-98° with a mean Cobb angle of 42°. Fifty six percent of the patients had a Cobb angle of more than 40° at presentation. Group 1 had a mean Cobb angle of 54° (range 10-98), with 70% of these patients having a Cobb angle of more than 40° at diagnosis. Group 2 had a mean Cobb angle of 43° (range 12-58) and 46% of these patients had a Cobb angle of more than 40°. Group 3 had a mean Cobb angle of 22° (range 10-30). Group 4 had a mean Cobb angle of 25° (range 16-37). We compared these results with the studies conducted at the same centre in 1976 and 1985. Figure 1 shows the percentage of patients detected by various groups in 1976, 1985 & 2000. Fig 2 shows the mean Cobb angle at presentation in the various groups.

DISCUSSION

The commonest method of detection of adolescent idiopathic scoliosis at our institution was by family or friends. This has increased since 1985 (8) and in the recent study 70% of these patients had a Cobb angle of more than 40° on presentation, which clearly shows that untrained eyes are only likely to detect rib hump or spinal deformity at a later stage. Only 8% of the cases are currently detected at school and this figure has dropped significantly from 32% in 1985 (8). This is even below the level of the 1970's i.e. 10% in 1976 (3). Table I shows the

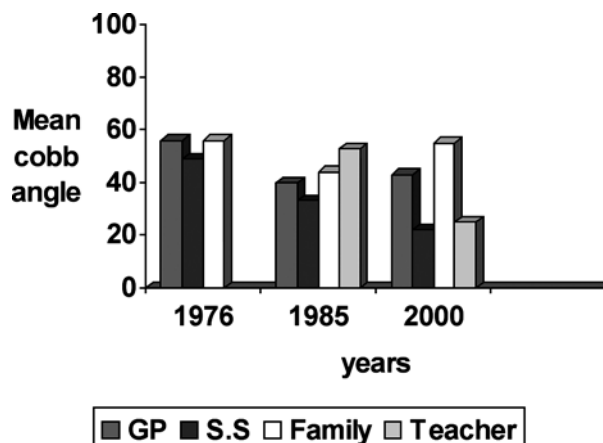


Fig. 2. — Mean Cobb angle at presentation in various groups

mean Cobb angle and the percentage of patients with a Cobb angle of less than 40° in the present study compared with the previous studies. It is interesting to note that all the cases detected at school in the present study had a Cobb angle of less than 40°.

It is prudent to mention scoliosis screening which had a great support in the 1980's. Scoliosis screening has been practiced for the last two decades. It has provided us with useful data on prevalence and natural history of scoliosis. There are numerous studies which advocate or oppose screening for adolescent idiopathic scoliosis (2, 3, 8, 9, 11-16). Those who advocate screening for scoliosis emphasize that the main advantage is to detect it in its early stage so that non-surgical management is possible. The only non-surgical treatment available is bracing which is more effective in mild curves (20°-35°) when growth potential remains (6). Opponents argue about the cost effectiveness of screening, particularly in view of the low incidence of scoliosis requiring treatment and the fact that screening tests will result in many more referrals for evaluation rather than treatment, thus increasing the workload. It has been shown that curves greater than 50° if left untreated are likely to progress even after skeletal maturity (1, 6, 7, 18). Scoliosis screening is compulsory in 26 states of the USA (5) and is carried out routinely in Canada (15), Sweden (19), Denmark (10), Singapore (4) and Japan (12). School screening in Sweden has increased public awareness of scoliosis and detects 70% of the cases (17).

Table I. — Mean Cobb angle and percentage of patients with Cobb angle under 40° in the three studies

Diagnosed by	Mean Cobb angle			% under 40°		
	1976	1985	2000	1976	1985	2000
Doctor/GP	56°	40°	43°	12	50	54
School	49°	33°	22°	25	72	100
Family/Friends	56°	44°	54°	15	37	30
Teacher	—	53°	25°	—	0	100

There is no national policy for scoliosis screening in many countries of the world at the moment.

Our study shows the changing patterns in presentation and detection of adolescent idiopathic scoliosis over the last thirty years at our institution. The majority of the cases are detected by family and friends. The number of cases of scoliosis detected at school has decreased and in the late 90's, we are even less well off than in the 70's, with many more patients being detected by family or friends, often at a later stage with larger Cobb angles in excess of 40°. With Cobb angles of this magnitude, non-operative measures are ineffective, highlighting the importance of having some means of early detection of scoliosis. Knowing the advantages and disadvantages of scoliosis screening, we still believe that there should be an early means of detection of scoliosis, preferably screening, but criteria for screening and referral to specialist clinic have to be redefined by multicentre studies. Another challenge is to produce a greater awareness of the condition in the adolescent population and those who come in contact with them and to put greater emphasis on health education programmes.

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