Evolution of the indications for cesarean section

Results of a retrospective study

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Summary: We have analysed in retrospect the incidence of cesarean section during the years 1977-1989 in the 1st Obstetric and Gynecologic Clinic of the University of Bologna, and the development over time of the principal indications. The average incidence (17.1%) of cesarean section increased progressively from 9% in 1977 to 28% in 1989 with a peak at the beginning of the '80s (the period during which cardiotocographic monitoring became routinely used). With regard to the indications from 1977 up to date cesarean sections carried out on account of fetal distress increased almost five-fold. The increase in cesarean sections carried out on account of maternal disease, breech presentation and previous cesarean section was less important, while those performed for dystocia resulted markedly reduced.

Key words: Cesarean section; Frequency; Indications.

INTRODUCTION

One of the most discussed subjects in obstetrics is represented by the vertiginous increase in the number of deliveries by cesarean section in Western Countries. The increase in the United States was about three times in the course of the last decade, with a tendency towards further progression on account of the ever-increasing number of repeated cesarean sections ([1]). Besides fetal distress, maternal disease and placental anomalies there has recently been seen a progressive extension of the indication principally represented by breech presentation and low fetal weight.

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Even if an optimal relation between cesarean section and normal deliveries is difficult to define, opinion is widespread that the present frequency of cesarean section has exceeded the number held to be necessary for reducing perinatal mortality to a minimum. Many Authors ([2, 3]) today are convinced that it is possible to obtain a diminution without impugning the actual low perinatal mortality rates; such as objective seems to be justified by the necessity for reducing maternal mortality and the marked increase in costs related to the increase in cesarean sections ([4]).

In order to seek and analyse the motives that have led, also in our Institute, to a notable increase in the number of operative deliveries, we have made a retrospective study of the frequency and evolution of the indications for cesarean section in the past thirteen years.

Table 1. – *Deliveries carried out in the 1st Obstetric and Gynecologic Clinic of the University of Bologna in the years 1977-1989.*

Years	'77	'78	'79	'80	'81	'82	'83	'84	'85	'86	'87	'88	'89	Tot.
Total deliveries	729	880	729	666	527	648	670	648	675	661	440	385	374	8032
Vaginal deliveries	663	830	666	591	427	560	559	527	531	502	337	296	269	6758
C.S.	66	50	63	75	100	88	111	121	144	159	103	89	105	1274
(%)	9	5.6	8.6	11.2	18.9	13.5	16.5	18.6	21.3	24	23.4	23.1	28	17.1

MATERIALS AND METHODS

A retrospective analysis was undertaken of the cesarean sections performed in our Clinic during the years 1977-1989. The number of cesarean sections was also examined in relation to maternal age, gestational age, parity and fetal weight. We then studied the indications for cesarean section and their modification over time; the principal indications considered were fetal distress, previous cesarean section, dystocia, breech presentation and maternal disease.

RESULTS

In the 1st Obstetric and Gynecologic Clinic of the University of Bologna between 1977 and 1989 there were altogether 8032 deliveries. Of these, 6758 were vaginal and 1274 cesarean sections (Tab. 1). The average frequency of cesarean section resulted 17.1%, having passed from 9% in 1977 to 28% in 1989, representing a three-fold total increase (Fig. 1).

The major increase was registered at the beginning of the eighties, passing from 8.6% in 1979 to 11.3% in 1980, and to 18.9% in 1981. The greatest increase concerned primary cesarean sections (85.9%) while for repeated cesarean sections no significant variations were noted.

With regard to maternal age, the highest number of cesarean sections were performed in the age range between 31 and 35 years (32.7%). In relation to gestational age the majority of cesarean sections were carried out on full-term pregnancies (82.6%); There was no increase in operative deliveries during these years for prolonged pregnancies. Thus, analysing the cesarean sections in relation to

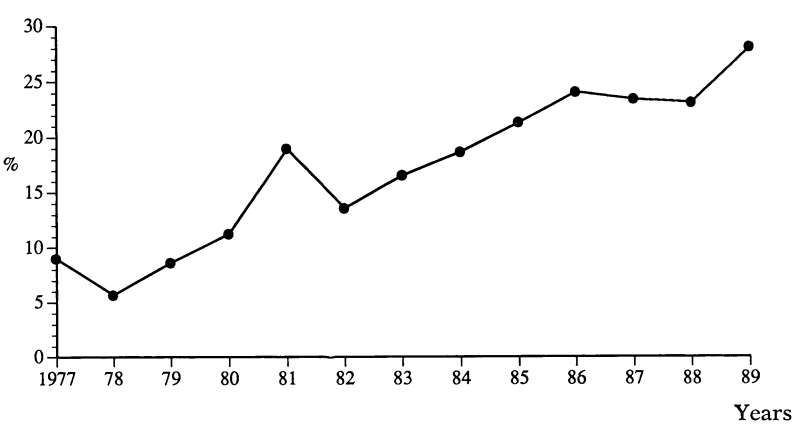

Fig. 1. – Frequency of cesarean sections in the years 1977-1989.

parity it was noted that the greatest number were carried out on primi-gravidas (68%). Finally, fetal weight did not influence the increase of cesarean sections inasmuch as the increase was observed in all weight groups considered (<2500 g, 2501 - 3000, 3001 - 3500, >3500).

With regard to the indications, from the examination of our data it appears that from 1977 up to date there has been a progressive increase in cesarean sections carried out for fetal distress (from 6.1% in 1977 to 29.5% in 1989).

Also cesarean sections performed because of maternal disease, above all gestosis and diabetes, proved to have doubled in the last few years (from 4.6% in 1977 to 9.5% in 1989) like those for breech presentation (from 6% in 1977 to 11.2% in 1989).

We also registered a marked reduction in cesarean sections carried out for dystocia (from 26.4% in 1977 to 7.9% in 1989).

It may therefore be noted that the indications for cesarean section have undergone important modifications during the period of time under review. In fact, fetal distress has today become the principal indication, while in 1977 it was in third place; the increase was registered mainly in the first years of the eighties, period of the most widespread use of cardiotocographic monitoring in labour.

Repeat cesarean section, contrary to observations in other case series ([2, 3, 5]), has maintained more or less the same percentage over time, while dystocia which occupied first place is now in the fifth (Fig. 2).

DISCUSSION AND CONCLUSIONS

In our study the recent increase in primary cesarean section proved to be essentially due to the more frequent diagnosis of fetal distress; this datum resulted particularly evident at the beginning of the eighties and appeared strictly correlated to the routine use of electronic monitoring of the fetal heart rate.

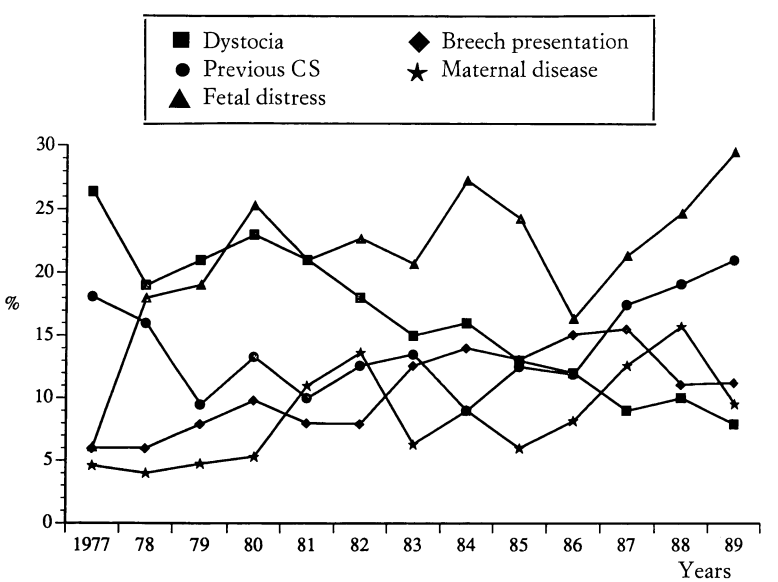

Fig. 2. – Frequency of the different indications for C.S. in the years 1977-1989.

Cesarean section represents, without doubt, the most suitable solution in cases of fetal distress; the problem is rather that of the possible overestimate of the predictive value of electronic monitoring as a test of fetal distress in labour. In effect, randomised studies have not given evidence of significant difference, with regard to fetal outcome, between a group of patients monitored and another not submitted to cardiotocographic checking in labour ([6, 7]). It may therefore be suspected that the observed increase in cesarean section for fetal distress is in part due to "overdiagnosis" of the same during electronic monitoring of the fetus ([8]). To this may be added the observation that the monitored patients provided a higher frequency of cesarean section in respect to those not monitored, independently of the diagnosis of fetal distress ([2, 9]).

With regard to dystocia, even allowing for the different classifications and significance, improved pharmaceutical knowledge and more careful diagnostic criteria have contributed towards reducing the incidence of cesarean section for this indication.

Even the precept "once a cesarean section, always a cesarean section" has, for some years, no longer been considered absolute. Studies are being published with increasing frequency to demonstrate that vaginal delivery, for patients with previous cesarean section by transverse incision of the lower uterine segment, accurately selected and monitored, is not only feasible but involves less risk than a second cesarean section ([10, 11]). According to some Authors a trial of labour after previous cesarean section represents the safest and most advisable procedure ([12]). This conduct should, without doubt, be carried out in hospital centres particularly equipped and capable of performing any eventual emergency ([13]). In the light of these observations in the United States, during the last few years it has been reported an increase (9.8%) in vaginal deliveries after previous cesarean sections ([14]).

Operative deliveries carried out for breech presentation have registered a relative increase, passing this indication from fourth place in 1977 to third place in 1989. In recent years the habit of carrying out elective cesarean section in cases of breech presentation in primigravida has certainly caused a situation of inexperience and insecurity among young obstetricians assisting in the vaginal delivery such as to induce a preference for operative delivery. Nevertheless, as some Authors have suggested, the increase in fetal morbility and mortality related to breech presentation is not always related to the type of delivery carried out ([15]). Although various studies confirm the safety of vaginal delivery in breech presentation in carefully selected cases ([16, 17]), the management of delivery is still being discussed by obstetricians and pediatricians.

In order to reduce the frequency of cesarean section in North America in 1980 the National Institute of Child Health and Human Development suggested some recommendations, above all in cases of previous cesarean section, dystocia and breech presentation. Seven years later the failure of such strategies has been ascertained, since not only has the frequency of cesarean section been stabilised, but has even further increased ([18]).

The explanation of such a phenomenon, not easily explicable, calls into question, beyond purely obstetric factors, socio-cultural and medico-legal factors as well.

It is, however, to be hoped that immediate response will be given in the near future to these problems, in order to seek and obtain optimal obstetric results making use of those technologies which, on the basis of short and long term results, will lead to effective and proven benefits.

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