



# A Reappraisal of Perinatal Mortality Factors in Twins

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During the last 33 years, the perinatal mortality of twins has decreased regularly in our department. When examined by duration of pregnancy, mortality was lowest at 37–38 weeks. Below 38 weeks, fetal loss was paradoxically higher in twins born from multiparae. When delivery occurred beyond 38 weeks, mortality rates were increased, but only differences for primiparous group showed statistical significance. Near-term fetal loss was predominantly due to antepartal intrauterine deaths. Analysis of individual cases indicated that early termination of pregnancy might help prevent near-term stillbirths in twins delivered by primiparae. Efforts should be directed at specific detection of twins threatened by antepartum death.

**Key words:** Twins, Perinatal mortality, Intrauterine death, Preterm termination of pregnancy

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## INTRODUCTION

Data correlating perinatal mortality of twins to the duration of pregnancy have been presented by Dutch [3] and Swedish [11] authors. While fetal loss was predictably related to the degree of prematurity, a rise of the mortality rate also was observed in twins born after the 38th week of gestation. In view of such results, Papiernik's group in France [8] and the Swedish team at Malmö [11] proposed that all twin pregnancies should be terminated around 37–38 weeks of gestational age.

We were reluctant to apply this policy in our department since it appeared from a previous study [1] that it would entail premature induction of labor in 40% of all twin pregnancies. It also was anticipated that the number of Caesarean sections would increase significantly as a consequence of failed inductions. Prior to making a final decision, we decided to analyze the perinatal loss of twins by gestational length in our own obstetrical population.

## MATERIALS AND METHODS

The present study deals with a continuous series of 575 twin pregnancies delivered in our department. Duration of pregnancy was estimated from the date of the last menses and confirmed whenever possible by ultrasonic measurement of the biparietal diameter and/or by neurologic assessment of newborn twins.

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RESULTS

During the past 33 years, the total perinatal mortality of twins born in our department has decreased from 15% to 6% (Fig. 1a). As classically reported [4,10], the mortality of the second twin used to exceed that of the first one. In recent years, however, this difference has disappeared. Corrected mortality rates (Fig. 1b) show the same trend,

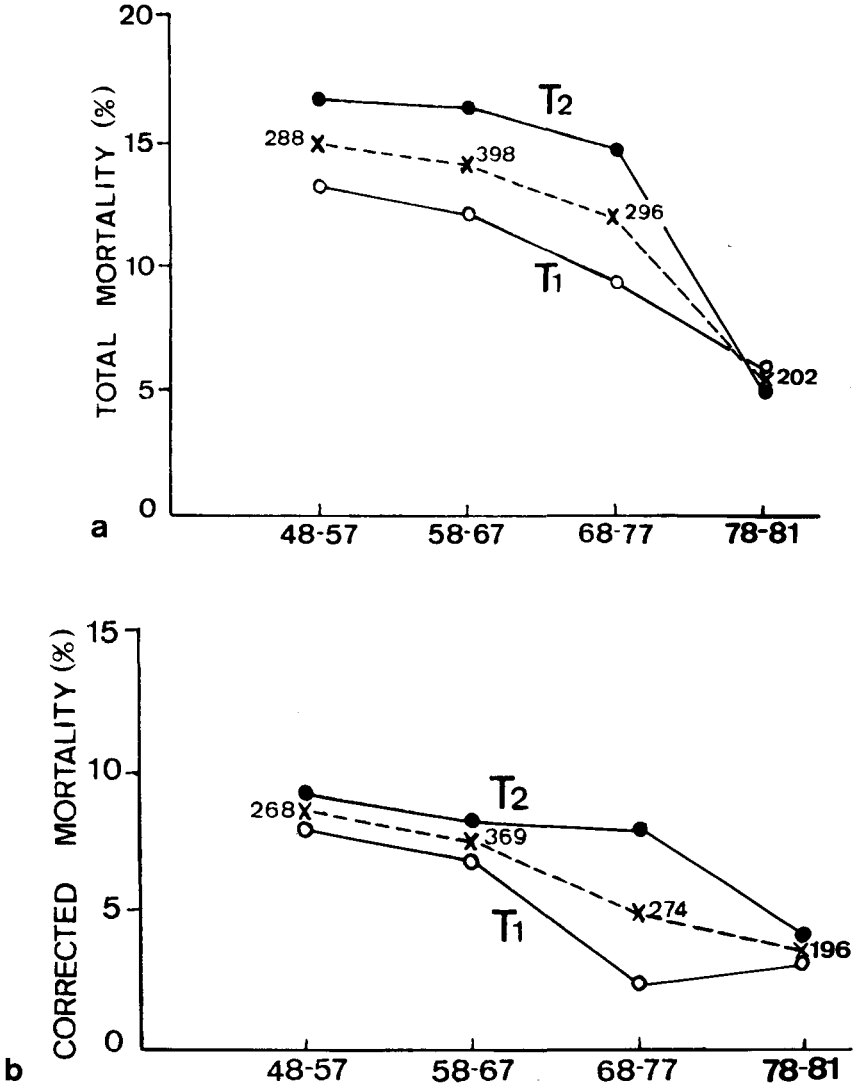


Fig. 1. a and b. Evolution, respectively, of total and corrected mortality of first (T1) and second (T2) twins born in our department. Corrected mortality corresponds to exclusion of fetuses of less than 1.0 kg, lethal malformations, and macerated stillbirths of unknown origin.

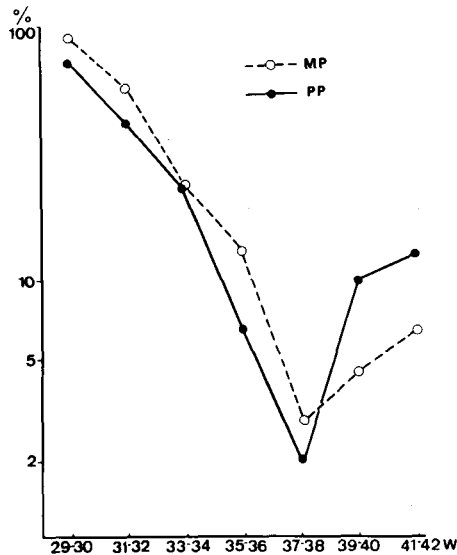


Fig. 2. Perinatal mortality among twins born from multiparous (MP) and primiparous (PP) mothers in relation to gestational length.

starting with a reduction of first twins' loss followed by a similar improvement of second twins' outcome.

The lowest perinatal mortality rate occurred in the group born at 37–38 weeks (Fig. 2). For any duration of pregnancy below 39 weeks, perinatal mortality among twins delivered from multiparae was found to be higher than from primiparae ( $P = 0.07$  for all twins born before 39 weeks and  $P = 0.03$  at 35–36 weeks). This difference was unexpected, since fetal-placental growth impairment and the increased risk to monozygotic pairs would preferentially burden the group of first pregnancies [1,2,4]. Average birth weights were 2,320 and 2,435 g in primi- and multigravidae, respectively. Moreover, similar relative difference was observed at every gestational age. Obviously, the worse outcome of premature twins born from multiparae was not related solely to unfavorable birth weight in this group. Mortality rates of twins delivered by multi- and primiparae did not differ at identical birth weight (Fig. 3).

Beyond 32 weeks of pregnancy duration, multiparous mothers of twins showed a lower proportion of cephalic presentations (Fig. 4). While such a difference might be involved in higher perinatal loss, it appeared that the frequency of major obstetrical maneuvers performed before 38 weeks had been similar in multi- and primigravidae (Table 1).

Beyond 38 weeks of gestational duration twins are again more threatened (Fig. 2). However, this near-term rise of mortality rate was statistically significant only for primiparae ( $P < 0.01$ ).

Examination of perinatal mortality according to the moment of fetal demise indicated that during the past decades, neonatal, antenatal, and intrapartal losses accounted for about 60, 25, and 15% of fatal cases, respectively. However, twins born either before or after the 38th week exhibit dissimilar subdistributions of perinatal mortality. As expected, between 29 and 38 weeks of gestational age, neonatal pathology largely predominates, implying defective birth weight, associated either with respiratory distress or

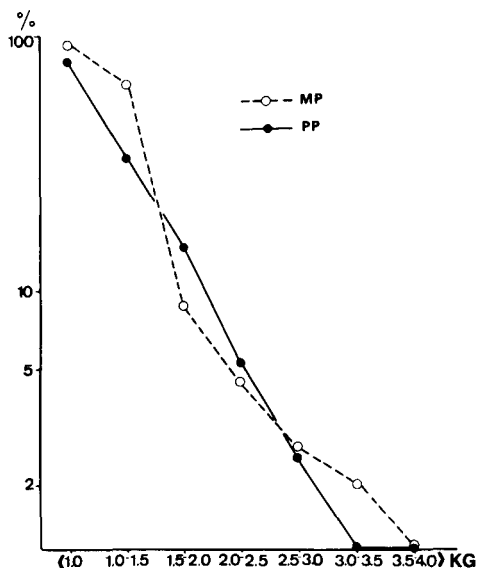


Fig. 3. Perinatal mortality among twins born from multi- (MP) and primiparous (PP) mothers in relation to birth weight.

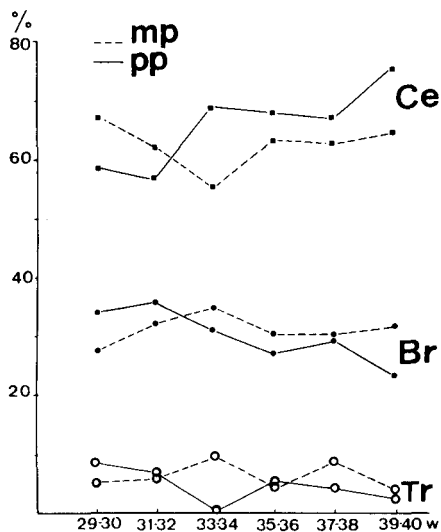


Fig. 4. Relative proportions of cephalic (Ce), breech (Br), and transverse (Tr) presentations in twins, according to duration of pregnancy in multiparae (mp) and primiparae (pp).

TABLE 1. *Obstetrical Maneuvers on Twins Born Before 39 Weeks of Pregnancy*

	Primiparae	Multiparae
Spontaneous delivery	73	84
Ventouse or forceps	18	3
Partial breech extraction	1	3
Podalic version and (or) total breech extraction	8	9
Other	—	1

Figures are percentages in each group.

TABLE 2. *Mortality Distribution in Twins Born Between 29 and 38 Weeks of Gestational Age*

Antepartum (17%)	
Macerated	15
Papyraceous	1
Intrapartum (15%)	
Major malformation	8
Low weight (<1,000 g)	4
Abruptio placentae	2
Neonatal (68%)	
Low weight	10
Low weight with	
Cerebral hemorrhage	12
Hyaline Membrane	31
Rhesus immunization	3
Infection	3
Major malformation	3
Unknown	2

cerebral damage (Table 2). In contrast, when delivery occurred after 38 weeks, 58% of all deaths corresponded to macerated or papyraceous fetuses (Table 3).

We wondered whether by curtailing twin pregnancy to 37–38 weeks, a significant number of stillbirths which occurred after that stage could have been avoided.

## DISCUSSION

It may be reasoned that early termination of pregnancy would be unable to dramatically modify factors responsible for intrapartum or neonatal deaths. Therefore, the antenatal mortality group would have been the most susceptible to benefit from this type of management. If fatal cases delivered between 39 and 42 weeks are examined individually, it appears, at least in the primiparous group, that birth weights of stillborn fetuses were often sufficient for us to surmise that they were still alive at 38 weeks (Table 4). From our data, it is difficult to assess the part played by monozygotic pathology in this group, although vascular anastomoses were recorded in several cases. A striking feature was that in the multiparous group, most macerated fetuses were delivered by women who had not been under antenatal care. This observation is in keeping with our previous report on the same population, showing that patients who did not seek antenatal care belonged to a social group that is at especially high risk of perinatal loss of twins [9].

TABLE 3. Mortality Distribution in Twins Born Beyond 38 Weeks of Pregnancy

Antepartum (58%)	
Macerated	13
Papyraceous	2
Intrapartum (19%)	
Twin locking	2
Cord prolapse	1
Podalic version	1
Unknown	1
Neonatal (23%)	
Major malformation	1
Rhesus immunization	2
Cerebral hemorrhage	1
Unknown	1

TABLE 4. Birth Weights (g) of Antepartally Deceased Twins Delivered Beyond 38 Weeks of Pregnancy\*

Primiparae		Multiparae	
T <sub>1</sub>	T <sub>2</sub>	T <sub>1</sub>	T <sub>2</sub>
<u>2,250</u> (M)	<u>2,250</u> (M)	<u>3,710</u> (F)	<u>400</u> (F)
<u>2,200</u> (F)	<u>1,200</u> (F)	<u>3,280</u> (F)	<u>3,150</u> (F)
<u>1,960</u> (F)	3,830 (F)	2,450 (F)	<u>900</u> (F)
<u>60</u> (?)	<u>2,430</u> (M)	3,950 (F)	<u>1,300</u> (M)
3,080 (F)	<u>2,270</u> (M)	<u>2,840</u> (F)	<u>1,390</u> (M)
2,680 (M)	<u>1,600</u> (F)	—	—

\*Non-underlined figures correspond to surviving co-twins; sexes are given in parentheses.  
T<sub>1</sub>: first twins; T<sub>2</sub>: second twins.

Under our working conditions, termination of twin pregnancy at the 38th week might thus prove beneficial in primiparae. This implies that about 10% of our twin pregnancies would undergo labor induction or Caesarian section.

At the present time, we would not advocate the same policy in the multiparous group for the following reasons: (1) in the present study, as well as in another report [3], no significant increase of perinatal mortality near term was observed in multiparous twin pregnancies; (2) multiparous patients delivering stillborn twins in our department belong to a group of patients without antenatal care, which escapes prophylactic treatment anyway; (3) causes of late intrauterine mortality, such as intertwin transfusion, growth retardation, and preeclampsia, are definitely less frequent in multiparae [4].

**CONCLUSIONS**

Rather than interrupting all twin pregnancies before term, it is more reasonable to attempt to detect cases at risk of intrauterine death. In this respect, maternal levels of estriol and placental lactogen are not very helpful, since the normal range of these parameters in

twin pregnancy is imprecise [7]. Also, they do not allow distinguishing between the individual fetal-placental units. Ultrasonic examination, however, enables one to detect twin growth retardation and even to diagnose intertwin transfusion on the basis of growth discrepancy within pairs [5,12]. Regular electronic monitoring of fetal heart rates under nonstress conditions has also been found of prognostic value in twin pregnancy [6].

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