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The Use of Hospital Resources to Treat Incomplete Abortions: Examples From Latin America

JUDITH A. FORTNEY, PhD

INDUCED ABORTION IS WIDESPREAD in Latin America, despite the fact that in every country it is available legally only under limited circumstances. Estimates of the overall incidence of abortion, characterized by Corvalan (1) as epidemic, are difficult to obtain. However, the consensus seems to be that the incidence is high and rising. The adverse consequences of illegal abortion extend beyond the obvious effects of health complications. Because of the drain on their scarce resources by patients with incomplete abortions, many hospitals are forced to offer less care to other obstetric and gynecologic patients (2).

Of particular interest to hospital administrators is the extent to which patients with incomplete abortions use scarce hospital resources. In a 1962 study in Santiago, Chile, the investigators found that from 1958 to 1960, 8.1 percent of the discharges from the National Health Service were abortion patients, but these patients constituted 41.6 percent of all the patients treated

in the emergency services (3). In the National Health Service maternity wards, 27.3 percent of the admissions were for abortions, and these patients required 29.4 percent of the bed-nights.

Corvalan (1) reported that in some Latin American hospitals complicated abortions accounted for 42 percent of all emergency consultations, 18 percent of the bed-nights, and 17 percent of the blood transfusions. Moreover, the volume of blood transfused to abortion patients was 27 percent of that given to all patients.

My purpose here is to document the use of various hospital resources for abortion patients in Latin American hospitals. The number of bed-nights, time in the operating room, amount of blood transfused, and use of anesthesia for abortion patients are assessed. Data on obstetric patients were available from some hospitals, and the number of nights in the hospital and the number of transfusions for these patients are presented.

Source of Data

Since 1972, the International Fertility Research Program has been collecting data on women seeking hospi-

Tearsheet requests to Dr. Judith A. Fortney, International Fertility Research Program, Research Triangle Park, N.C. 27709.

tal treatment as the result of abortions. Some abortions are illegally induced outside the hospital and some are spontaneous. Although the attending physicians record their impressions, it is difficult to determine which abortions are induced and which are spontaneous. The physicians may record one of the following categories: induced outside the hospital, probably induced outside the hospital, probably spontaneous, or spontaneous. The percentage reported as induced outside the hospital or probably induced outside the hospital (illegally induced) varies considerably from one hospital to another. For example, the hospital in Panama City reported the highest percentage (53.4) of induced abortion, and one can perhaps infer that this figure may be accurate. In contrast, the hospital in San Pedro Sula, Honduras, reported the lowest percentage (3.1), which leads to the assumption that the physicians were protecting their patients and perhaps other physicians.

Data on 27,675 abortion cases were analyzed. These data were obtained from studies conducted between 1972 and 1979 in 9 Latin American countries. In 8 of these countries, 15 self-selected hospitals contributed data. In Colombia, 24 hospitals were randomly selected

to be representative of urban areas; in the interest of space, these are represented as 1 hospital in the tables. Data also were obtained on 78,861 obstetric cases from 12 of the hospitals. The 15 hospitals ranged in type from well-equipped university teaching hospitals to those with very limited resources. (This research would not have been possible without the collaboration of the many dedicated physicians and their hospitals who contributed their data.)

Findings

The resources used (beds and blood for transfusions) per 100 abortion patients and per 100 obstetric patients are shown in table 1. In 5 of the 12 hospitals for which both types of data were available, abortion patients spent more time in the hospital than the obstetric patients; however, the only large difference in time occurred for the patients in the San Pedro Sula hospital—176 nights for 100 abortion patients, as opposed to 97 for 100 obstetric patients.

The average hospitalization time did not differ greatly among the hospitals; it ranged from 130 nights

per 100 patients in the Colombian centers to 305 nights per 100 patients in the Lima hospital. In general, there was an even distribution between 200 and 300 nights per 100 abortion patients. An obvious exception to this distribution was seen in a study of septic abortions in one of the two participating hospitals in San Salvador, where these patients were hospitalized much longer—approximately 6½ days.

In each hospital, the percentage of abortion patients who spent more than 1 week in the hospital was small but not negligible—2.8 percent in all the hospitals combined. In only two hospitals, in San Pedro Sula and Mexico City, none of the patients spent 2 weeks or more in the hospital. In the national sample of hospitals in Colombia, only a few patients stayed as long as 2 weeks.

In most hospitals, the patients who remained a week or longer were more likely than those hospitalized for a shorter time to be in the midtrimester of pregnancy; a large percentage had been admitted because of septic abortion (26 percent) or other complications, or both. In three hospitals, more than half of the patients received a blood transfusion, and a significant percentage required more than one procedure for evacuation of the uterus. Up to 25 percent of the patients had a hysterectomy, the last resort in the treatment of an incomplete abortion; the average was more than 15 percent.

The percentage of patients who did not spend the night in the hospital, or spent less than 12 hours, ranged from less than 1 percent in 9 hospitals to more than 15 percent in 4 hospitals. This difference may reflect either hospital policy and mode of treatment or the severity of the conditions of patients on admission, or a combination of both factors. Many incomplete abortions, especially those that are aseptic, can be treated safely without the need for overnight hospitalization (depending on the time of day when the patient is admitted); yet, many of the hospitals did keep aseptic patients overnight.

Operating room time. The mean time spent in the operating room for curettage ranged from less than 10 to 30 minutes (table 2). This difference probably reflects hospital logistics and policy rather than patients' conditions, because curettage should not take longer for patients with more severe conditions—although preparation for sicker patients does require more time. This assumption is supported by the finding that among women who were in the operating room less than 30 minutes, this short operating room time did not affect their length of hospitalization. Of course, major surgical intervention requires a much longer time in the operating room. Patients undergoing a hysterectomy spent an

average of 81 minutes in the operating room, in contrast to 22 minutes for patients having a sharp curettage and 18 minutes for those having a suction curettage.

Blood transfusions. In the 12 hospitals for which the comparison could be made, abortion patients were more likely to have received a blood transfusion than obstetric patients; in most hospitals, they were at least twice as likely.

The fact that some hospitals gave blood to only a small percentage of their patients does not necessarily mean that those hospitals admitted patients with less severe conditions than the hospitals where a large percentage of patients received transfusions. For example, the hospital in Lima does not have an adequate supply of blood for all the patients who need it. In that hospital, only 2.8 percent of the patients received a transfusion, and only 0.4 percent got as much as 500 ml of blood. At the other extreme, 18.2 percent of the patients in one of the San Salvador hospitals received a transfusion, and 17.5 percent got 500 ml of blood or more.

Information on the volume of blood given to obstetric patients who received transfusions was not available.

Anesthesia. General anesthesia was used for almost all patients in most of the hospitals. In the hospitals in Africa, Chile, and in Colombia, however, anesthesia was used for only about half of the patients; the hospitals in Santiago and Lima rarely used general anesthesia. Local anesthesia is now being used for most patients.

In the hospitals where general anesthesia was rarely used, analgesics were given to almost all the patients. Some of these hospitals occasionally performed a sharp curettage under general anesthesia or without any type of anesthesia. Of course, hysterectomies were performed under general anesthesia.

Many U.S. hospitals have greatly reduced their use of general anesthesia: for a number of surgical procedures—including the treatment of incomplete abortions—local anesthesia or analgesics, or both, are being used. Although general anesthesia for abortion by suction curettage carries an overall risk similar to that for patients receiving local anesthesia or analgesics, the incidence of some major complications (hemorrhage and uterine and cervical trauma) is higher when the uterus is evacuated under general anesthesia (4). In most of the Latin American hospitals studied, the general anesthesia used was a short-acting barbiturate (such as pentathol) administered intravenously, often by a non-anesthesiologist who lacked sufficient backup or skills. Although this kind of situation can lead to

Table 1. Resources used per 100 abortion patients and per 100 obstetric patients in 15 Latin American hospitals

Location of hospital	Bed-nights		Transfusions		Liters of blood		Number of cases	
	Abortion	Obstetric	Abortion	Obstetric	Abortion	Obstetric	Abortion	Obstetric
Campinas, Brazil	245	245	5.5	2.3	3.45	NA	1,839	388
Arica, Chile	222	347	11.8	8.7	8.05	do.	1,131	6,520
Valdivia, Chile	335	353	5.5	4.8	3.56	do.	604	4,779
Santiago, Chile, hospital a	291	323	12.2	6.0	9.99	do.	1,706	7,693
Santiago, Chile, hospital b	295	205	14.9	3.8	NA	do.	595	3,998
National sample, Colombia	130	174	7.2	1.8	6.50	do.	8,180	13,480
San Salvador, El Salvador, hospital a	230	197	13.9	2.7	11.92	do.	2,738	1,470
San Salvador, El Salvador, hospital b	183	201	18.2	2.6	10.32	do.	1,593	9,746
Guatemala City, Guatemala, hospital a	198	NA	8.0	NA	NA	do.	537
Guatemala City, Guatemala, hospital b	210	NA	6.2	NA	NA	do.	3,370
Tegucigalpa, Honduras	211	163	13.4	2.8	3.30	do.	1,117	11,515
San Pedro Sula, Honduras	176	97	6.6	2.3	3.69	do.	830	8,532
Mexico City, Mexico	162	209	5.3	4.0	3.25	do.	340	849
Panama City, Panama	292	209	7.1	2.0	3.74	do.	1,250	9,897
Lima, Peru	305	NA	2.8	NA	1.62	do.	1,844

NOTE: NA means not available.

major complications such as respiratory or cardiac arrest, no deaths due to anesthetics occurred in this series.

A further disadvantage of the routine use of general anesthesia in the treatment of incomplete abortion is cost. Most forms of general anesthesia cost considerably more than local or regional anesthesia. Also, the recovery period after general anesthesia is longer, which could preclude outpatient treatment. In addition, some hospitals may require the presence of an anesthesiologist when general anesthesia is administered, adding further to the cost. The combination of cost and safety factors suggests that many of these hospitals would do well to change their routine management of incomplete abortions.

It is worth noting that two of the Colombian hospitals treated most patients without any anesthesia. While this is a fairly common practice around the world, it is not recommended unless the hospital's resources are so limited as to offer no alternative.

Septic-abortion patients. Generally, the patients who are the greatest drain on the hospital's resources are those who are admitted with an infection. In some hospitals, a separate operating room is set aside for these patients to reduce the danger of infection spreading to other gynecologic or obstetric patients; this implies that an operating room is unavailable for other types of patients.

Some admission characteristics of septic and non-septic patients, as well as their use of some hospital resources, are shown in table 3. Up to 20 weeks, there is no consistent difference in the gestation of patients who have an infection at admission and those who do

not. However, after 20 weeks the proportion of septic abortions declines, suggesting that abortions after 20 weeks probably are spontaneous. Septic patients are much more likely to have had illegally induced rather than spontaneous abortions. The physician is also more likely to assume that the abortion was induced rather than spontaneous when there is infection, which suggests that these numbers should be viewed in relative rather than absolute terms.

A high percentage of patients with infection also had other complications at admission; excessive blood loss

Table 2. Mean time spent in operating room for curettage by abortion patients in 15 Latin America hospitals

Location of hospital	Mean time (minutes)	Number of cases
Campinas, Brazil	25.3	1,839
Arica, Chile	6.7	1,131
Valdivia, Chile	9.1	604
Santiago, Chile, hospital a	12.6	1,706
Santiago, Chile, hospital b	NA	596
National sample, Colombia	15.6	5,257
San Salvador, El Salvador, hospital a	11.8	2,738
San Salvador, El Salvador, hospital b	17.0	1,593
Guatemala City, Guatemala, hospital a	NA	537
Guatemala City, Guatemala, hospital b	NA	3,370
Tegucigalpa, Honduras	16.5	1,117
San Pedro Sula, Honduras	5.7	830
Mexico City, Mexico	17.1	340
Panama City, Panama	30.0	1,250
Lima, Peru	10.0	1,844

NOTE: NA means not available.

Table 3. Comparison of selected characteristics for septic (S) and non-septic (NS) abortion patients in Latin American hospitals with at least 25 septic cases

Location of hospital	Gestation weeks ¹		Percent with—										Mean number of nights in hospital		Number of cases	
			Induced		Other complications		Blood Transfusion		Hysterectomy							
	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS		
Campinas, Brazil	9.7	10.6	66.4	2.9	18.1	5.3	7.8	6.4	0.0	0.2	3.3	2.4	116	1,720		
Arica, Chile	12.4	11.5	90.5	1.2	44.8	9.2	19.9	10.2	2.5	0.0	4.2	1.8	201	930		
Valdivia, Chile	11.7	10.7	61.5	12.7	85.3	7.8	7.1	4.9	2.6	0.4	4.7	1.6	156	448		
Santiago, Chile, hospital a	11.7	11.5	80.2	13.0	30.1	11.4	12.5	12.7	0.7	0.1	3.5	2.6	585	1,116		
National sample, Colombia	9.5	9.4	69.4	21.7	31.6	6.9	NA	NA	0.7	0.0	2.9	1.6	948	4,307		
San Salvador, El Salvador, hospital a	11.8	12.1	94.1	9.8	95.2	14.9	37.1	17.3	10.9	0.1	6.4	2.3	525	940		
San Salvador, El Salvador, hospital b	10.6	11.3	3.7	2.1	51.7	8.8	26.4	16.1	2.7	0.0	2.6	1.6	375	1,214		
Guatemala City, Guatemala, hospital b	11.0	11.7	45.2	2.6	14.8	9.8	7.3	5.3	NA	NA	2.7	2.0	467	2,740		
Tegucigalpa, Honduras	12.7	12.2	30.8	2.4	61.4	12.6	19.6	8.8	0.3	0.0	3.7	1.5	321	793		
San Pedro Sula, Honduras	12.4	13.3	8.6	2.6	70.0	4.9	14.3	6.2	0.0	0.0	2.5	1.7	70	753		
Mexico City, Mexico	11.0	10.3	20.0	2.5	12.0	1.9	8.0	5.1	0.0	0.0	2.5	1.6	25	315		
Panama City, Panama	10.6	10.3	98.2	9.2	39.7	5.6	7.7	6.5	0.0	0.0	0.1	2.7	620	628		
Lima, Peru	11.2	10.8	31.5	1.2	17.5	2.2	9.8	2.2	0.7	0.1	5.2	2.8	143	1,701		

¹ Since last menstrual period.

NOTE: NA means not available.

was the most common, followed by uterine perforations and cervical lacerations. Septic patients, consistent with their greater blood loss, were more likely to receive a blood transfusion during their stay in the hospital. The absolute magnitude of the percentage receiving blood depended more on the availability of blood than on any other factor; nonetheless, at every hospital more septic than nonseptic patients received a blood transfusion.

With the exception of one hospital in San Salvador, few patients required a hysterectomy (0.5 percent). However, over all hospitals, the percentage of septic

patients with a hysterectomy (2.1 percent) was 30 times higher than the percentage of nonseptic patients (0.07 percent); there were more septic than nonseptic hysterectomies in each hospital as well. Patients undergoing hysterectomy averaged well over an hour (87 minutes) in the operating room, compared with 20 minutes for patients who were successfully treated with curettage alone.

Table 4 shows that 3 of 4 patients treated by hysterectomy (whether septic or not) stayed more than 1 week in the hospital, compared with less than 1 in 50 of the patients treated by sharp curettage. Even among

Table 4. Days in hospital, by type of procedure performed¹ for septic and nonseptic abortion patients in 15 Latin American hospitals

Days in hospital	Nonseptic on admission ²								Septic on admission ³							
	Sharp curettage		Hysterectomy		Other		Total		Sharp curettage		Hysterectomy		Other		Total	
	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent	Num-ber	Per-cent
Less than 1 ...	2,842	14.4	1	6.7	1,044	50.5	3,887	17.9	191	3.7	1	0.8	44	16.0	238	4.2
1-2	13,291	67.6	1	6.7	734	35.5	14,026	64.5	2,570	49.8	8	7.6	123	44.7	2,702	48.6
3-7	3,237	16.5	2	13.3	235	11.4	3,474	16.0	2,222	43.1	19	16.0	88	32.0	2,329	41.9
8 or more ...	303	1.5	11	73.3	53	2.6	367	1.7	178	3.4	90	75.6	20	7.3	288	5.2
Total ⁴ .	19,673	100.0	15	100.0	2,066	100.0	21,754	100.0	5,161	100.0	118	100.0	275	100.0	5,555	100.0

¹ Only procedure, or last procedure if more than 1 was performed.

² $\chi^2 = 2,167.6, P < .001$.

³ $\chi^2 = 1,338.4, P < .001$.

⁴ Data on 1 or more relevant variables were missing for 366 cases.

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septic patients, only 1 in 25 stayed longer than a week if they required only sharp curettage. This increase in hospitalization reflects not only the more extensive surgery, but also the severity of the patients' conditions. As shown in table 4, 11 hysterectomy patients were hospitalized less than 3 days; both patients hospitalized less than 24 hours died in the hospital, and 7 of the 9 patients hospitalized only 1 or 2 days also died in hospital.

Discussion

This paper documents the extent to which abortion patients use some hospital resources. Because of the nature of the data collected, the focus is on the number of nights in the hospital, the amount of time spent in the operating room, the use of anesthesia, and the amount of blood transfused. Although data on the amount of time spent by various health professionals with patients were not available, operating room time and hospitalization time are proxies for this variable.

Nevertheless, it is clear that an incomplete abortion, especially one with complications, is quite a drain on the hospital's resources. On the average it means 2 or 3 days in the hospital, 15 or 20 minutes in the operating room, antibiotics, anesthesia, and quite often a blood transfusion. In many hospitals, each of these resources is relatively scarce and their use for abortion patients may mean that other patients are deprived.

No attempt has been made to attach a dollar value to these costs because many of the necessary numbers are unknown. Although it would be relatively easy to determine the cost of 500 ml of blood, few hospitals are able to estimate the cost per minute of an operating room. All hospitals know what (paying) patients are charged for one night, but few know the real cost of one bed-night. Nevertheless, with the figures provided here, hospital administrators can make some useful calculations. Knowing the number of bed-nights per 100 abortion patients (table 1) and the number of cases of incomplete abortion admitted during a given time period (from hospital records), an administrator can easily obtain the total number of bed-nights for abortion patients. If an estimate of the cost per night of hospitalization is available, even using the cost to the patient as an estimate, a satisfactory estimate of the cost in hospital beds for incomplete abortion can be derived. By the same procedure, other costs can be estimated.

Estimates of the total cost derived in this manner will, of course, be underestimates. It is probably impossible to assess accurately many of the hidden costs, such as delaying care for other patients if beds are not available.

Means of reducing the costs of incomplete abortions can be categorized as follows.

Increasing the efficiency and cost-effectiveness of the clinical management of incomplete abortion. The ideal management of an uncomplicated, aseptic incomplete abortion appears to be suction curettage, under local anesthesia, with only a few hours of hospitalization. A patient does not need overnight hospitalization if no complications develop, and if her home is close enough that she can easily return to the hospital for treatment should complications arise after discharge. However, most hospitals in this sample do not follow this pattern of treatment.

Reducing the incidence of incomplete abortion. The incidence of illegal abortion can be greatly reduced by ensuring that a means of contraception is available to all who want it. Also, providing contraception information uses considerably less resources than the provision of treatment for incomplete abortion. There is no better time to recruit women to family planning than during the postabortion period. Every hospital that treats patients for incomplete abortion should have an active contraception counseling program and offer all methods of family planning, including sterilization. Furthermore, it has been documented that all methods of family planning can be provided safely in the immediate postabortion period (5,6), and this is certainly the time when acceptance is likely to be highest. It is most likely that acceptance will be higher if the physician who treats the patient for abortion also provides the contraceptive or sterilization rather than referring the woman to a family planning clinic. If all women treated for incomplete abortions are provided with an acceptable and effective means of family planning, the incidence of illegal abortion in the future will be reduced.

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