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TUBERCULOSIS AND PREGNANCY

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THE EFFECT OF PREGNANCY on tuberculosis is a subject on which a great deal of opinion has been given and yet over the years there has been very little in the medical literature which is backed up by a review of clinical material. Yet one of the commonest requests from the tuberculosis physician is whether it is safe for the tuberculous patient to get married, and, more often, whether it is safe for her to become pregnant. This role of marriage counsellor is not one for which we have any particular training, and with the greatly improved prognosis in tuberculous cases it is becoming harder and harder to predict the outcome of each case whether the persons become pregnant or not.

The history of the opinion of the effect of childbearing on tuberculosis is most interesting because it has been so contradictory. Hippocrates is said to have thought that pregnancy was good for tuberculosis but his advice was forgotten in the era of 1920 to 1940. Then our birth rate was fairly consistently declining in Canada and the U.S.A., and a few persons, such as Forssner in Sweden in 1925 and Alice Hill in 1928, who thought that pregnancy did not increase the death rate from tuberculosis, and that those who completed their pregnancies did as well as those who had a therapeutic abortion, found most clinical opinion contrary to their own.

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Then as the severity of tuberculosis in women declined and the birth rate increased, beginning about 1940, the clinical opinion also mellowed and a new and most important feature came into being, i.e., the custom of having a chest x-ray as part of good prenatal care. Schaefer[5] in 1952 and again in 1954, writing from experience at Triboro Hospital in New York, pointed out that the incidence of active tuberculosis in obstetrical patients increased considerably after routine prenatal films began to be taken. I believe we would all agree that it is a desirable routine in prenatal care. I only wish that all women in the child-bearing years, whether they were pregnant or not, would be x-rayed yearly—as I believe this would find as much tuberculosis proportionately as the examination of the obstetrical patients.

There has been a tremendous drop in female mortality from tuberculosis. In British Columbia this has been from an average of 114 deaths in 1944-1946 to 29 deaths per year from 1953 to 1955, i.e., to less than one-third the rate of 10 years ago. With this and with the increasing number of cases of successful arrest of tuberculosis, the more recent papers on this subject seem to regard the combination of tuberculosis and pregnancy in a much more favourable light. Edge[3] in 1952, reporting on Brompton Hospital cases with active tuberculosis and positive sputum in 1945 and 1946, and followed up for five years, came to the conclusion that "the findings supported the view that pregnancy has no dramatic effect on the course of pulmonary tuberculosis." Cromie,[1] writing from Northern Ireland, in 1954 suggested that pregnancy did have a deleterious effect, and considered the

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first trimester and the first three months post partum as danger periods. However, he summed up by saying: "If active disease is diagnosed during pregnancy it should be treated exactly as the same lesion in a non-pregnant case. With present-day effective therapy there are practically no indications for therapeutic abortion." Schaefer,[5] writing on experience in Seaview and Triboro Hospitals in New York, indicated that he could see no deleterious effect from pregnancy and, perhaps more important, concluded from his statistics that patients who had undergone therapeutic abortion did not do quite so well as those left to go to full-term delivery.

I must confess that my own outlook on this problem is reminiscent of that in a footnote by Eastman,[6] Professor of Obstetrics at Johns Hopkins University, in *Obstetric and Gynecological Survey* (February 1955). In discussing one of Schaefer's papers from the *American Review of Tuberculosis*, Eastman says:

"For some time now, most obstetricians and perhaps most phthisiologists also have been veering toward the opinion that tuberculosis is rarely an indication for therapeutic abortion; and certainly, the rationale of this attitude is beautifully documented in this convincing paper. On the other hand, if my experience is at all representative, many internists do not seem to have caught up with this trend of thought and still cling to the old idea that pulmonary tuberculosis calls routinely for interruption of pregnancy no matter whether the duration of gestation be one month or six. I am glad to see, accordingly, that this paper was not published in one of our own obstetrics and gynecology journals but in a periodical which is read by most phthisiologists and also, no doubt, by some internists. To push this matter further, it might be hoped that these same authors, or other writers on the subject, will send some of their future papers to one or another of the journals dealing with internal medicine so that all physicians could approach this problem with a similar background of facts."

PRESENT STUDY

So far in the literature I have not seen any record of cases treated since combined antimicrobial therapy of at least 12 months' duration has been used, and in this paper I wish to present a one-year to three-year follow-up on such cases. The records of all known tuberculous women between the ages of 17 and 42 inclusive who had lived on Vancouver Island at any time in 1953, 1954 or 1955 were searched, and 510 cases were reconsidered after a few were discarded. Those discarded included no cases known to have had active tuberculosis when last examined or at any time during this three-year period. In fact, the discards were entirely persons with inactive disease at the last examination and not examined since the beginning of 1953, or alternately those who did not have respiratory tuberculosis. Cases of pleurisy with effusion were included.

During this time nine women of all ages died of tuberculosis. This is a rate of approximately 3 per 100,000 women per year. Of these only four had ever been pregnant, one 16 years before the diagnosis of tuberculosis, and one when her tuberculosis was active, although no change was seen on x-ray or in clinical findings during the pregnancy or during the succeeding six months. The third had been virtually a prostitute since the age of 12 and had a child four months before diagnosis of moderately advanced active disease. The fourth patient was found to have minimal activity on a routine prenatal film in 1951, but she refused any orthodox treatment, took a starvation diet from a "quack" and died four years later with galloping consumption, having had one further child two years before death. We had no x-ray records during this four-year period, and cannot therefore correlate her pregnancy with her downhill course.

Only one of these nine women who died had been diagnosed as tuberculous in the past three years and she too treated herself for many months before the brief two-weeks' terminal admission to hospital. She had never been pregnant.

A review then of these few deaths does not seem to show that pregnancy was an important factor in bringing on the deterioration of tuberculosis. And the death rate from tuberculosis is now so low in women that I believe we must search for any effects from pregnancy in more subtle things like progression or reactivation in a case.

In newly diagnosed cases during this three-year period the average birth rate was 26 per 1000 total population and there were 15,000 live births in the area. Twelve new active tuberculosis cases were found in pregnant women. This is a detection rate of 1 in 1300 pregnancies or 0.076%.

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During this time 69 new active cases were discovered in women of this age group. As just mentioned, 12 were pregnant and five had had an infant within the previous 12 months. When it is considered that with our present birth rate approximately one-seventh of women of ages 17 to 42 give birth to a child in any one year, the proportion of 12 out of 69, allowing for the smallness of figures, does not suggest to me that pregnancy makes a young woman more prone to develop tuberculosis. The corollary of these findings is that, while we have deliberately encouraged the taking of a routine chest film in pregnancy, it is probably equally important to take frequent films on all women in the child-bearing years.

Of these 12 cases diagnosed in pregnancy, nine had minimal active and three moderately advanced active disease. In five out of 12 the diagnosis was made on routine prenatal chest x-rays, and in a further two on hospital admission films when they were admitted for vomiting of early pregnancy.

At the end of April 1956, none of the 12 was still in sanatorium; all had negative sputum and were making satisfactory progress. Some of them of course were still on antimicrobials. One had had a therapeutic abortion in early 1953 and had done well.

Two of the other 57 cases newly diagnosed and not pregnant at the time of diagnosis have had reactivations. In one case this happened six months post partum and in the other it had no relationship to pregnancy.

The second group of 14 cases might be considered as cases of chronic active tuberculosis; that is, their tuberculosis had been active for more than one year prior to the beginning of 1953. Three of these have been pregnant during the three-year period, two without any change in their tuberculosis; the third was a woman who took unorthodox treatment and has since died.

The third and largest group of 441 previously known cases showed 65 cases (14.7%) of reactivation during the three-year period. Ninety-eight of these women were pregnant at least once during this time and gave birth to 115 babies. This means that in our area one out of 135 women or 0.73% attending the doctor for pregnancy will be known to have had tuberculosis. There were nine reactivations during pregnancy and four during the first four months post partum. This makes a total of 13 reactivations in 98 pregnant patients (13.3%). At the end of April 1956, all 13 patients were sputum-negative and doing well.

In 343 patients known to have tuberculosis but not pregnant during the three-year period, there were 52 reactivations (15.4%). At the end of April 1956, two are still in sanatorium and doing well; one has had a very small spread of disease this spring. I take these figures to mean there is virtually no difference in proneness to reactivation whether the young woman is pregnant or not.

It has been the custom to suggest to the young woman who has had tuberculosis that her disease should be arrested for two years before she becomes pregnant. Within this group of 128 pregnancies there were 24 young women who did not have active tuberculosis but whose disease was arrested less than two years. In only one of these has reactivation occurred. This does not suggest to me any deleterious effect of pregnancy on recently treated tuberculosis.

Presented in another way: of 65 reactivations in known cases, 14 occurred in patients whose disease had been arrested less than two years, but only one of the 14 was pregnant. Fifty-one (almost four-fifths) of the reactivations occurred in those whose disease had been arrested for more than two years; eight of these were pregnant and this occurred out of 88 pregnancies—a rate of 9%. One of the patients with reactivation had a therapeutic abortion in 1953 and has done well.

I recognize that there should be at least a five-year follow-up of all those cases to indicate their progress. However, the one-year and two-year follow-up show such good results that I would be surprised if five-year figures were much different, and I believe it is justifiable to base our course of action on what we know at present.

What advice, then, should we give to the tuberculous woman in the light of the figures just presented? Personally I can see us giving her no counsel regarding marriage except as stated by Ferguson[4] in his recently published "Studies in Tuberculosis": "It would appear then that marriage—the segregation and the wholesome life that it affords—probably provides a considerable degree of protection against disease and death from tuberculosis as compared with the single status in Saskatchewan and in Canada as a whole. It is a factor second only to avoidance

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of exposure by contact or occupation, and perhaps of greater importance than any predisposing factor such as economic status, housing, or living conditions in Canada."

Then as to pregnancy, why advise delay until the disease has been two years arrested? In good prenatal care it has been our custom to advise an afternoon rest. I would suggest that we should advise our tuberculous patients to delay pregnancy until their tuberculous regimen permits exercise as desired except for midday (afternoon) rest. However, we should not give patients the impression that pregnancy arising when they are on a more restricted regimen would be deleterious to their tuberculosis.

There is the thorny problem of therapeutic abortion. From these figures and those cited of others, I find it difficult to believe that therapeutic abortion is now ever indicated in a woman with tuberculosis.

Is there then any problem in the tuberculous woman with respect to pregnancy? The recent gynæcological literature points out that tuberculosis of the pelvis, though declining in incidence, is still with us and that almost all women with this disease never become pregnant. Novak states that about 5% of endometrial biopsies in cases of sterility show the histology of tuberculosis in the endometrium, and that tuberculosis is found at perhaps 3% of salpingectomies. There is probably encouragement from the use of antimicrobials in pelvic tuberculosis, but so far very few of these persons have become pregnant after treatment. There are several reports of tubal pregnancy and of miscarriages. In our tuberculous women of childbearing age, there were 17 with tuberculous salpingitis, none of whom has had a child since the diagnosis was made. There was one patient, fairly recently treated, who had a tubal pregnancy.

Surely we may hope that if the only clinical evidence of pelvic tuberculosis is that from an endometrial biopsy, some of these early patients will have an opportunity to bear children after adequate antimicrobial therapy, even though most authors assume that tuberculous salpingitis is always present when tuberculous endometritis is found.

This I submit is the real problem of tuberculosis and pregnancy and one for which our therapeutic success to date is very poor.

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