

INFLUENZA COMPLICATING LATE PREGNANCY AND  
LABOR.

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DURING the present epidemic a number of women in late pregnancy or labor were received at Providence Hospital with acute influenza. These were of two types (1) uncomplicated, (2) with pneumonia. The former had the usual symptoms of influenza without lung affection or dilated right heart. The symptoms of this type were frontal headache, coryza, chilly sensations and moderate fever, backache, conjunctival congestion, intense reddening of the pharynx, considerable prostration. In the course of from three to five days the fever had dropped to normal and all the symptoms were alleviated except the marked weakness. There were no lung or heart signs of importance in any of these cases. This type was not serious and did no material damage outside of premature labor resulting in several cases.

The severe cases of influenza during late pregnancy or labor all suffered from pulmonary involvement. This ranged from edema of the lungs and severe lobar pneumonia to a mild grade of bronchopneumonia. Invariably those who suffered from air hunger and cyanosis succumbed. The rest who were less toxic recovered, though the rate of stillbirths from these was high.

Those with lung involvement were graded as mild or severe. The former type usually commenced with the usual attack of influenza. After several days bronchopneumonia developed usually at the base of one or both lungs. The fever was usually not high, nor was the

pulse rate and the character of the pulse was not bad. Respiration was advanced to from 30 to 50. In the light grades it was often difficult to make out the lung findings. The cough was usually annoying, difficult to relieve and in cases it tended to be continuous, expectoration was scanty, sometimes blood tinged, frequently tenacious, occasionally prune-juice type.

There was usually a low blood pressure for late pregnancy and most had unusually low diastolic pressure. There was a slight leukopenia in most of these. Prostration was fairly marked. Albuminuria was transiently present. There was no delirium. Recovery from fever was by lysis, in the course of fourteen to twenty-one days from the onset. Unusual weakness was present for a considerable period after the end of the fever. There was no cyanosis, air hunger was absent, though slight dyspnea was common.

The severe or fatal type with lung involvement were hopelessly sick almost from the start. Prostration was marked and continued to increase from the start. Those with edema of the lungs suffered most from this. Respiration averaged from 30 to 50 per minute though some with lobar pneumonia had respiration up to 70. Pulse rate varied considerably, the average being from 110-130 though certain cases ranged up to 160. The volume was usually fair and character good until just before death. Temperature was mostly low, though several ran up to 106° F. The systolic pressure except in cases of chronic kidney involvement was low. The diastolic pressure was exceptionally low. This gave an unusually high pulse pressure which accounted for the strength of the pulse. The low systolic pressure indicated the degree of prostration. Just before death the pressure could not be obtained. Cyanosis was a constant symptom in this type and it usually became more marked as the end approached. In certain ones it was extreme, extending from the back of the neck to the ears, from the fingers up the forearm and well above the ankles. Air hunger was always present. Those suffering from edema of the lungs had suffused faces. There was herpes febrilis in several. The rapidly fatal cases were comatose from the start. All others had varying degrees of delirium. Sensitiveness to pain was much lessened. The characteristic hard cough was annoying.

There was a slight anemia and a relative hemaglobinemia. Most cases showed a leukemia which tended to increase. Albuminuria was almost constantly present. Urine excretion was lessened. The specific gravity was high.

The few cases we were able to examine postmortem gave findings

of bronchopneumonia, lobar pneumonia and pulmonary edema. There was apparent mobilization of blood to an extreme degree in the lungs and broncholytic action in certain small areas. There was also dilatation of the right heart with the auricle filled with blood. The right heart muscle was thinned and flabby. A bloody exudate of 200 c.c. or over was found in the pleural sac.

The patient appeared to be suffering from a profound toxemia, which produced air hunger, leukopenia, prostration, delirium, a weakened right heart and blood-pressure changes. That the air hunger was not the result of pathologic changes in the lungs is proven by the fact that some patients who suffered most, had less lung involvement than others. The more severe the toxemia the more marked was the leukopenia and an increase of the white cells marked an improvement in the toxic state. The prostration was out of all proportion to the temperature, pulse or duration of the illness. The rapidly fatal cases were exhausted almost from the beginning. All severe cases which were not comatose were delirious for various periods. One which recovered was delirious for eight days, three days after a normal temperature. The dilatation of the right heart seems to result from the toxemia, just as the voluntary muscles are in exhaustion. Some of the markedly cyanotic cases had little lung involvement, but a very greatly dilated right heart. This would indicate an insufficiency of the weakened right heart rather than a damming back of venous blood from lung engorgement.

The prognosis for women suffering from influenza in late pregnancy or labor is good providing there is no pulmonary complication. A small percentage have premature labor with a considerable number of stillbirths. Those suffering the complications of lobar pneumonia or bronchopneumonia are desperately ill. If the case be mild with slight symptoms of toxemia the result may be favorable. The severe type is almost invariably fatal. Cyanosis, air hunger, leukopenia and low blood pressure are unfavorable signs. A change from leukopenia to leukocytosis signifies a favorable reaction. An increase of systolic and especially diastolic pressure is a hopeful sign. Increasing cyanosis and air hunger indicate a rapidly fatal termination.

The toxic state seen in pneumonia complicating influenza in late pregnancy presented a new problem in obstetrics. As the delivery seemed to be harmful to the condition of the patient because of the efforts made to expel the fetus, it was thought best to aid by harmless means such as low or medium forceps and manual dilatation. At least it was possible that the cyanosis

and air hunger might be helped by delivery. Three of the severe cases were aided in delivery, one by low forceps, two by completing dilatation manually when almost complete and applying forceps. The course of these was more rapidly fatal than those left unaided in delivery. Digalen was given intravenously in 15-minum doses to stimulate the heart. Morphin was given gr.  $\frac{1}{6}$  per hypo to relieve the dyspnea and stimulate heart action. There was apparently no result from these measures.

It was not considered advantageous to induce labor and as any interference in an operative way seemed harmful stimulation and support were used to try to carry the patient through her illness and delivery.

Finally in the last few cases cared for an effort was made to combat the toxic state without interfering with pregnancy or delivery. The efforts to aid delivery and stimulate the heart action being useless, these were abandoned. As almost all fatal cases seemed to suffer from leukopenia an effort was made to increase the leukocytes. Electrargol, an albuminate of silver was given intravenously to induce leukocytosis. When a good reaction followed, the leukocyte count increased and the condition of the patient improved with this. Repeated injections were given daily until improvement was marked.

The prostration, lowered blood pressure and weakened right heart point to a possible suprarenal deficiency. Adrenalin solution (1:1000) was given, 1 dram in 1 pint of glucose solution per rectum by means of the Murphy drip twice daily. The systolic pressure improved slightly and the diastolic considerably after the use of adrenalin. The prostration was lessened as well as cyanosis and dyspnea.

The three last cases which appeared as severe as the fatal cases improved under this treatment. One was discharged undelivered, two were delivered; one premature child died shortly after delivery.

For the distressing cough heroin was given. Atropin was used in the cases of edema to lessen secretion but was not effective.

Of the thirteen women suffering from severe lung involvement twelve died. The survivor left undelivered, having been treated with adrenalin and electrargol.

From the twelve fatal cases two living children were born, one of which died in a few hours, the other is living. Four women died undelivered. Six were delivered of stillbirths, all full time or nearly so. This gave a recovery in severe cases of less than 8 per cent. of the mothers, and over 15 per cent. of the children. Two deaths were

due to lobar pneumonia, eight to bronchopneumonia, two to pulmonary edema.

Of the eight cases with less severe symptoms all recovered in from two to four weeks. Three had stillbirths, two were undelivered and three gave birth to living children.

In the total of twenty-one cases there was a material mortality of twelve or 57 per cent. Six or 28.5 per cent. were not delivered; four babes (19 per cent.) died in utero, 9.5 per cent. were living in utero. Fourteen babes (66 $\frac{2}{3}$  per cent.) died.

It was found that these women were peculiarly insensitive to pain and apparently did not feel the stress of labor. Most of those delivered of stillbirths hardly showed that they were in labor before being delivered. One had her child in bed before a house doctor could be called. Some had a very small amount of heroin before delivery.

The severe cases of pneumonia in late pregnancy suffer from a severe toxemia. The fate of the fetus is linked with that of the mother. An effort to save one, disregarding that of the other is apt to be disastrous to both. Hope for both lies in overcoming the toxemia and not in induced labor or forced delivery. It is the toxic state which is fatal, not the delivery, though this is an added strain on the mother. So efforts to hurry delivery are more harmful than noninterference. Just as in eclampsia the best results will come from efforts to control the toxemia.

The chances for the fetus are bad. The toxic state either causes antenatal death or premature labor which is apt to be fatal to the fetus. The fetal mortality is lessened where the mother recovers. Therefore it is inadvisable to make efforts to save a morbid child by means which are detrimental to maternal life. All efforts should be made to control the toxic state early in the disease. The best hopes for both mother and child lie not in meddling obstetrics but in overcoming the toxemia.

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