Control of Chest Pain*

EDWIN RAYNER LEVINE, M.D., F.C.C.P.
Chicago, Illinois

Pain involving the chest causes the patient to seek medical attention with an urgency that is second only to that following hemoptysis. There is frequently anxiety accompanying this pain and the insistence of the patient on relief is completely out of proportion to the degree of pain. The result has been that over the years the physician has yielded to this demand and has directed his treatment toward the relief of the symptom, frequently without regard to the necessities of the underlying conditions and the possible deleterious effects that the treatment may have.

Cupping and leeches were standard procedure in former days and while they may not have improved the underlying pathology, the pain was frequently relieved and no side effects occurred. Later the use of analgesic and sedative medicines superseded these measures. Opium, morphine and its derivatives were found to be effective, both in relieving the pain and the anxiety of the patient and in abolishing the cough which frequently was part of the picture and was responsible for severe painful spasms. Another method which became popular was immobilizing of the chest by binders and adhesive tape strapping. With greater and increasing knowledge of pulmonary physiology and recognition of the changes which accompany various types of pathology, it has become clear that not all methods of relieving pain are desirable and that these methods of treating the pain may aggravate the underlying pathological condition. A second fact which must be remembered is that pathology may be extended or even produced by therapeutic measures which interfere with normal lung function. An approach to the treatment of chest pain must consider in what way this symptom is related to the underlying pathology and how the pain or the pathology affects respiratory function.

The most cursory investigation of this question indicates the complexity of the subject. For we are dealing not with one symptom but a whole variety of symptoms arising out of many different situations. The only point of similarity is the anatomical location, that these are pains which are felt in or referred to the chest.

Not all pain which is felt in the chest is covered by this discussion. Pains may be felt in the chest and are reported by the patient as such. However, they arise elsewhere and should be considered as belonging to other fields of medicine. In this category may be placed the burning or pressure pain customarily felt over the sternum, which is associated with gastric disturbance. Likewise, one would include irritation of the colon which may cause sensation high up under the scapula, gallbladder disease whose subjective symptoms may be referred to chest areas and others. Since these

*From the Medical Department of the Edgewater Hospital, Chicago, Illinois.

521
can not be logically considered pain arising in the chest, they will be eliminated from the discussion of the management of this condition. They are mentioned here only because of the necessity of determining whether one of these conditions exists before any treatment of the symptom itself occurs.

The pain arising in the chest belongs in several separate categories. The first of these is pain caused by injury or pathology in structures which are involved in the muscular motions of the chest, whether during breathing, coughing or other actions involving skeletal muscles. In this category are found such conditions as injuries to the chest and pleuritis. This is pain which occurs or increases from breathing, coughing, swallowing or other physical movements. There may be relative freedom from pain during such times in which these movements are eliminated or limited. A second type of pain is that felt on the surface of the body but referred from pathological changes in an underlying organ. This is not much influenced by breathing and has a tendency to be constant or recurrent in nature. A third type of pain is that caused by irritation or inflammation of the intercostal nerves.

Although the management of the conditions which caused these types of pain may be different, there are certain basic principles in the control of the symptom itself which do not change much from one condition to the other.

*Methods of Treatment:*

Narcotics and the strapping of chests are effective means of controlling pain. However, these are so often contra-indicated that it is necessary to find other procedures which will be as effective and which will not have their disadvantages. Such procedures are available. The first and most definite is injecting of the intercostal nerves in the segments of the chest involved. Several substances are available and if used properly result in complete freedom of pain for periods ranging from several hours to a week or more. Among these are procaine, Zylocaine and efocaine. The first named produces anaesthesia of short duration and requires considerable skill in infiltrating the nerve. Zylocaine has the power to spread and be absorbed so that if it is introduced reasonably near the intercostal nerve, enough is absorbed to produce a very satisfying effect. The beneficial effect lasts several hours to a full day and the return of the sensation is gradual. Efocaine belongs to the group of long acting medication. It must be injected very close to the nerve, itself, and the effect will last generally at least a week. This may be desirable in postoperative cases, tumors and similar conditions. It has a distinct disadvantage in the management of pain associated with inflammation or infectious disease where the duration of the symptom may be an important index of the course of the pathology. A serious drawback, which is inherent in the technique itself, and has nothing to do with the type of drug used, is the danger associated with introduction of a needle into the chest wall to a point which actually lies on the parietal pleura.

It is not an uncommon experience to find an area of pneumothorax in
a chest in which a diagnostic aspiration has been done. Sometimes this air has been introduced from the outside when the syringe has been disconnected from the needle but in many cases it is the result of puncture of the visceral pleura as the point of the needle penetrates beyond the rib. It has been demonstrated by Tchertkoff that artificial pneumothorax can be instituted in this manner and his work has been corroborated by many others in the field. When we consider the customary long bevel on the average needle used for any type of chest infiltration or aspiration, it is easy to understand how the parietal and visceral pleura, so closely approximated, may both be pierced in the course of searching for the intercostal nerve. This explains the pneumothorax sometimes seen when an x-ray film is taken within 24 hours of such an infiltration. Since there are many conditions which are associated with chest pain in which any collapse of the lung is undesirable, either because of interference with needed lung function or because of the danger of introducing infection into a pleural space, this procedure of intercostal nerve injection should not be recommended for general use and should be reserved for such cases in which the alleviation of pain is not possible by other safer methods.

There are two approaches which have the virtue of being safe as well as effective. The first of these—anaesthetizing pain areas of the chest—has been worked out and presented by Trevel. In this procedure, trigger areas are located and procaine injected intra-cutaneously in these regions or, as an alternative, more simple procedure, ethyl chloride spray applied to the skin to produce controlled freezing. In the chest, these trigger areas have two main sites. For the intercostal nerves, they are found in a region in the corresponding segment at about one inch lateral to the dorsal spine. For the precordium they exist in the region of the pectoral muscles.

The exact spot may frequently be found by palpation which demonstrates an area of recognizable tenderness. If procaine is injected at this site, far removed though it be from the spot where pain is felt, relief is almost immediate and the improvement will last for several hours. Because of its ease of application, ethyl chloride spray is more practical than the injection of procaine. This is likewise applied to the trigger area. The spray should be applied from a distance of not less than 24 inches with circular motion and hitting the skin at an angle rather than perpendicularly. An area well above and below the exact site should be sprayed. When frost appears, it should be wiped off with gauze. It is more effective to apply the spray for 10 or 15 seconds and then wipe off the skin, following this by another application. The time of the procedure will depend upon the degree of relief of pain secured. It is generally possible to eliminate pain entirely. However, it is important that actual freezing of the skin does not occur since this is both unnecessary and the cause of later irritation.

The second method recommended is even simpler than the above techniques. It consists of the application of heat to the area which is painful and, in severe cases, to the trigger area as well and following this with the application of an analgesic rub over these same areas. In cases where heat is contra-indicated for any reason, the rub may be applied alone.
Although the relief is not as rapid nor as spectacular as either of the above techniques, it is definite and will last for periods ranging from three to six hours.

There are many such substances available and the results are uneven with different products. In the cases discussed in this paper, a particular analgesic rub has been used, Rub A-535.* It has been found to be effective in a wide variety of conditions. It is non-greasy and has a vanishing absorbable base thus insuring almost instant utilization of its active ingredients. Because an attempt was made to determine the effectiveness of this method, this rub was used with and without heat, in similar types of cases. The effectiveness is greatly increased when heat has been applied to the area previously, whether by heating pad, infra-red lamp, or other method. The rub is applied over the previously heated area and it is not necessary to use vigorous or heavy massage. The region may then be covered by a heavy Turkish towel or some similar material.

_Pain Associated with Chest Motion:_

Pain originating with or increased by muscular motion of the chest is generally associated with those structures which are put under strain or moved when the chest cage is moved. These are the pleura, the ribs, the intercostal muscles and the diaphragm. It is worth nothing that, although pain caused by irritated or inflamed intercostal nerves falls into an entirely different category, this pain may also be increased on muscle motion or shifting of the chest cage. It is important to differentiate these, since the response to treatment is very different. If the chest is immobilized by pressing a hand on the rib cage or simply by cessation of respiration in the position of expiration, the origin of the pain may be tested. If there is disturbance or inflammation of the pleura, ribs, or muscles, the patient will exhibit marked relief when the chest is immobilized. On the other hand, the pain caused by irritation of the nerve itself is not much improved by this.

Since immobilization relieves the pain, such a procedure is one of the most popular methods of treating one of these conditions. The customary method is adhesive tape strapping, although a circular bandage completely around the chest is preferred by some. There is no question that this alleviates the pain, but if the physiology of the lung is considered in line with the pathological condition, there are many objections to its use.

One of the most important functions of ventilation, in addition to its basic purpose, is that of drainage of the lung and elimination of undesirable material from the bronchial tree. This is performed through the motions of inspiration and expiration. Since the bronchi change in length and diameter with each phase of inspiration, these motions aid in elimination of secretion. Any time the chest is immobilized, this type of drainage is lost and there is a tendency for secretion to be retained, particularly in

---

*Rub A-535 was kindly furnished by the Denver Chemical Manufacturing Co., Inc. for the study.
dependent areas. If you add to this the splinting of the chest normally caused by pain and sometimes also fixation of the diaphragm, it is easy to realize that a considerable retention of secretion will take place. When inflammatory reaction occurs in the lung or the bronchi, infection is likely to be present in addition to retained secretion. This is the reason why an excess of narcotics is frowned upon in the treatment of chest pain. It is axiomatic that treatment with morphine or codeine or any one of the special derivatives is likely to produce stasis of secretion, pneumonic infiltration or patchy atelectasis. The very same reasoning that prohibits the use of narcotics should likewise prohibit the immobilization of the chest by any mechanical or reflex procedure. The optimum treatment would inhibit the pain and the pain only.

This can be accomplished by nerve block, superficial procaine injection, the application of ethyl chloride to trigger areas, or the use of an analgesic rub over the involved region. All of these are effective. The duration of their effect will vary. Nerve block is efficient but should be recommended in the most severe cases only since other and more simple procedures are available. For the severe case it is probably better to use the subcutaneous or intracutaneous injection of procaine or the application of ethyl chloride spray. These should be applied to "trigger areas" not to the entire area of pain. Neither procaine nor ethyl chloride produce permanent relief. The pain may return in a period that varies anywhere from one hour to 24 hours. If pain returns rapidly it is not desirable to continue this type of treatment. For this reason when the pain shows signs of returning the patient should be instructed to apply analgesic rub to the involved area.

It may be worthwhile, except in severe cases, to use such a rub first before attempting one of the more complex methods of controlling the pain. Frequently even severe pain will be alleviated by this means. The procedure recommended previously should be followed. Shortly thereafter the patient will begin to feel increased sensations of warmth and an alleviation of pain. Such improvement is illustrated by the following case history.

C. A., age 36, is a severe asthmatic, subject to attacks of spasmotic cough. This cough would be violent and non-productive. During such an episode she fractured the eighth and tenth ribs on the left side. This was the third time such an accident occurred. Previous studies as well as studies at this time indicated no pathology in the bone. Her bronchial tree was filled with sticky secretion and there was evidence of some infection. The pain was so severe that it made both breathing and coughing difficult, both of which were obviously necessary for ventilation and oxygenation of the blood. Any narcotic was definitely contra-indicated. The presence of the asthma and the large amount of sticky secretion made strapping of the chest a highly hazardous procedure which would probably be followed by serious complications. For this reason one application of ethyl chloride was applied over the region from the 6" to the 12" thoracic spine, about one inch to the left of the midline. Relief was rapid and a more adequate ventilation was possible. However, such relief could only be temporary and she was instructed to apply heat and the analgesic rub at the first return of sensation. She followed this routine for one week, using the rub every three hours for the first 24 hours and decreasing after that to an average of three times a day after four days. At the end of one week, the pain was felt only on severe cough or sudden movement.
**Pleurisy:**

Inflammation of the pleura, whether caused by infection or irritation, is one of the commonest causes of pain in the chest. Pleuritis accompanying various types of respiratory infection sometimes occurs almost in epidemic form. Associated with pneumonia, tuberculosis or other deep chest infections, it is considered a routine part of the clinical picture by the physician. The patient, however, is much more disturbed and apprehensive when the pain of pleuritis accompanies chest infection. He is awakened at night by the pain, whether associated with coughing or turning over, and throughout the day he never loses the feeling that something is wrong. The pain then takes on the magnitude of a major symptom and the patient demands relief.

In the management of respiratory infection it is axiomatic that the cough should not be suppressed since it is necessary to eliminate the infected material and since a certain amount of secretion is developed every hour in the process of resolution of the inflammatory exudate. For the same reason, anything that would tend to diminish the respiratory excursion of the lung or the ventilation of the lobe or lobes which are infected is likewise contraindicated. Such limitation of lung function tends to aid the retention of secretion and when secretion is retained in the bronchi, it will spill over into uninvolved areas extending the infection or to produce localized atelectasis. The same objection exists for immobilization of the chest or the use of narcotics in pleuritis without obvious demonstrable lung pathology. It is hard to conceive of inflammation of the pleura without some involvement of the lung beneath. It is therefore likely that interference with the normal methods of drainage and ventilation might prolong a pathological process rather than improve it.

The plan of treatment should follow that of pain caused or increased by the motions of ventilation. The intercostal nerves may be injected, trigger areas treated with ethyl chloride or procain, or an analgesic rub may be used. It should be emphasized that the danger associated with the intercostal injection of nerves is perhaps greater here than in the case of muscular pain. As stated before, it is not unlikely that the injection needle may pierce the parietal and visceral pleura to produce traumatic pneumothorax. If there is infection in the underlying lung, this makes possible the transmission of this infection directly into the pleural space and the subsequent development of infected fluid. Such cases have been observed. For this reason, intercostal nerve injection should not be a routine procedure in the pain of pleurisy. It is not the substances which are injected which may be dangerous but the needle itself. If there were no other method of controlling this pain safely, the hazard might be justified by the result but, since the pain can be controlled easily by other methods, it would not seem justifiable to use this technique routinely.

Immediate and definite relief of the pain may be accomplished in the doctor’s office, patient’s home or at the hospital, by the application of ethyl chloride to the trigger area of the corresponding segment. This should
follow the procedure described previously. Care should be taken that a wide enough area is treated and that the skin should not suffer too great an effect of freezing. The injection of procaine in this area will likewise produce an immediate and definite relief of pain. Since it is not desirable to repeat this many times, it should always be followed up by the use of analgesic rub. This should be applied to the area which is painful and, also, to the same trigger areas lateral to the spine. The relief from pain that follows such an application is quite striking and the freedom of motion of the chest as well as the muscles of the back and the arm enable the patient to breathe, cough and move about comfortably.

The patient should be instructed to repeat this rub whenever the pain returns. Here there is no localized area of tenderness sensitive to touch as is found in fractures. Consequently, it is not necessary to repeat the therapy at the first sign of pain. It is generally more desirable to wait until the symptom has returned with sufficient severity to justify another treatment. It is noticeable that without any narcotic medication, the patient may be completely free of pain and the time between treatments will be constantly increased until the pain is eliminated entirely. This is illustrated by the following case report.

B. M., age 42, was found to be suffering from a respiratory infection of the influenza type accompanied by a deep bronchial or bronchopulmonary involvement with the production of much thick secretion. He had a severe spasmodic cough, sometimes associated with wheezing. At the end of the first 24 hours of this condition, he began to complain of severe stabbing pain in his left chest which occurred on cough or deep inspiration. It was not present when he held his breath or when the chest was immobilized by pressure. Upon examination, a pleural rub was heard in this area. X-ray film showed no definite pulmonary pathology or any evidence of fluid. Fluoroscopy indicated splinting of the chest and of the diaphragm. It was felt that enough of any narcotic substance to eliminate the pain would interfere seriously with the mechanism of cough and expulsion of this thick bronchial secretion. The same objection applied to strapping of the chest. He was instructed to apply heat to the left chest and back and to follow this by the application of the recommended analgesic rub. During this treatment, and the administration of antibiotics, he was likewise confined to bed. He reported relief from pain shortly after the first application of the rub and that he slept comfortably without the need for sedation. Throughout the next day, he found it necessary to repeat the treatment four times and again had a comfortable night. The following day the rub was used twice and once or twice a day within the next three days. Following this, there was no return of the pain.

This case is reported since it represents the simplest and easiest method of controlling the pain of pleuritis and as a demonstration that the use of the analgesic rub alone is frequently completely successful. Similar results have been obtained in the acute pleural pain associated with spontaneous pneumothorax or the re-expansion of a collapsed lung. It would seem to be important that this technique eliminates the need for sedation or the use of narcotics.

It may be, and it has been the experience of many men, that narcotics may be used safely in similar situations. It would seem logical, however, that if these drugs do, as we know they do, interfere with functions that
aid in the reparative process, their use can not be considered an unmixed blessing. Occasionally demonstrable trouble will occur. In a large number of cases, the rapidity of improvement will be interfered with and certainly, in any case, it can not be said that it aids in the actual recovery of the patient. The availability of such a simple and safe procedure would argue against the use of narcotic drugs in any case of pleurisy.

Muscular Soreness:

We are well acquainted with the pain experienced in the muscles of the arms, legs or back which follows their excessive use. Muscle stiffness or soreness following exercise or work around the house is an expected event and occurs frequently in the early days of spring. Such a symptom may likewise occur in the chest, particularly in patients who have been removing storm windows and doors, painting ceilings or performing other activities which entail the frequent lifting of the arms or the crossing of the arms over the chest. The man who early in the season decides to limber up his golf game and spends an hour or so practicing driving is likely to notice within the next two to three days quite a lot of pain and soreness over his left chest, back and shoulders. This is not infrequently mistakened considered as a symptom of possible coronary disease. When such a condition has been eliminated and when the muscles in this area are sore and sensitive to touch not only by pressure on the chest but when they are picked up between the fingers and palpated, the clinical picture is that of muscle soreness in the eager but unaccustomed athlete. A similar condition is frequently associated with the intercostal muscles. As any old athlete knows, the relief of sore muscles is most quickly accomplished by massage and more exercise. This is frequently not a practical recommendation to the business or professional man. The application of heat is always beneficial. If this be followed by the analgesic rub, the patient experiences a lasting relief and can use the muscles of his arms and chest freely. Such reaction will hasten recovery and disappearance of the symptom.

Referred Pains:

Pain referred to the surface of the chest as the result of actual chest pathology is a much more serious and difficult symptom to handle. Typical of this category is the pain around the shoulder girdle. This is not uncommon in tuberculosis. Similarly, the pain in the chest which occurs in certain bronchogenic carcinomas presents a problem in therapy. In these latter cases, there is a temptation to use narcotics indiscriminately since the obviously poor prognosis gives one a feeling of futility and frustration and the customary observation is that the patient might as well be comfortable. What harm can it do? The difficulty arises when the patient does not succumb with the rapidity that is anticipated and the doctor is faced with the physical and psychological problems that make up the picture of drug addiction.

This type of pain is much more difficult to control. The use of any of
the narcotic drugs ought to be kept as a last resort and other methods attempted first and continued until the effectiveness is eliminated. Where the pain is in the lower portion of the chest, the injection of the intercostal nerves brings definite relief. The long lasting drugs are to be recommended as the material of choice. Chief among these would be efocaline which can be injected into the suitable intercostal nerves. If, for any reason, such injection is not desirable either because of its frequent repetition, lack of cooperation on the part of the patient or for any other reason, the same techniques which are helpful in the treatment of other chest pains will demonstrate some effectiveness here.

The proper and careful use of ethyl chloride over trigger areas will relieve the patient almost immediately. It is curious that in this type of pain, which has been so constant, the type of reaction following such a treatment is entirely different than that of injury or inflammation. In this latter group, the patient reports almost immediately that his pain is gone and he breathes comfortably. The tumor patient almost invariably says that he doesn’t know. He thinks it is less. In response to direct questions, he will say: “No, it doesn’t hurt so much but I am not sure that it is gone.”

The duration of the effect in tumor cases is more transient than in the inflammatory ones. If this is followed up by the use of the analgesic rub some additional relief is obtained. This is extremely irregular—some patients report absolutely no improvement while others will show relief varying from slight to complete elimination of the symptom. The effectiveness of this type of therapy does not last for a great period of time. In some cases, after the first few days, there is no further relief from repetition of the rub. In others, relief of pain will continue over a period of many weeks. In these cases, it would appear that the application of heat for at least one-half an hour preceding the use of the rub aids considerably in its effectiveness.

**Tuberculosis and Other Lung Diseases:**

In the referred pain associated with inflammatory diseases in the chest, there is a tendency to feel that sooner or later this will improve and that the patient will feel better if he remains quiet in bed with no medication. The exact antithesis of this is just as frequently found where large amounts of codein or other drugs are given so that the patient may be comfortable and not suffer from unnecessary pain. In this type of patient strapping of the chest may not cause any aggravation of the disease but, what is much more important to the patient, it produces little if any relief from the pain. In these cases, the use of the analgesic rub is particularly valuable. Whether or not it is preceded by the application of heat will depend on the feeling of the physician in the particular case. In this particular study, I have not hesitated to apply heat to the chest of patients with tuberculosis and have not observed untoward events. It has never been followed by hemoptysis, elevation of temperature or increased activity of the disease. It may well be that the general use of antibiotics in tuberculosis
has prevented the unpleasant sequela of the application of heat which
might be anticipated.

Pain associated with cardiac disturbance is sometimes chronic in nature,
requiring specific treatment. The severe pain of the acute attack is another
problem entirely and is associated with the management of the acute
episode. It is the anginal type of pain occurring constantly over long periods
in the patient with coronary insufficiency that brings up the problem of
management of the pain as a separate entity. It is neither feasible nor
desirable to use narcotics over a long period nor to recommend the constant
use of vaso dilators such as nitroglycerin. If the patient has returned to
or remains in fairly good clinical condition and there is no particular
evidence justifying continued bed rest, it is frequently the pain alone that
is the troublesome symptom. This will often respond to the application of
ethyl chloride spray or procaine to the trigger area found in the left
pectoralis region. Considerable relief has also been secured, using the
analgesic rub over the same area. Since this relieves the pain without
producing anaesthesia, it does not eliminate the danger sign of the sudden
appearance of severe pain. It may thus aid the patient without interfering
with medical observation.

**Intercostal Neuritis and Neuralgia:**

Intercostal neuralgias and myalgias are not uncommonly seen in certain
seasons. When so-called virus infections are common, such a condition
may be a very frequent occurrence. The pain is easily recognizable by its
following the course of an intercostal nerve and similarity to the neuralgia
so commonly seen in the arms and shoulders. When the more serious
pathological conditions which may cause such a symptom have been satis-
factorily ruled out, or even during the course of such a work-up, the
symptom of itself can be treated to relieve the patient of unnecessary
pain. Injection of the nerve with any one of the recommended drugs will
of course eliminate the pain. This however appears to be too much of a
procedure for such a simple condition particularly when it will respond
rapidly to the application of heat and the analgesic rub. The procedure
should follow the recommended technique and the patient instructed to
use it whenever indicated. The underlying pathology, if any, will of course
be treated concurrently. There is one danger in this treatment which must
not be overlooked. The patient may develop the tendency for self-medica-
tion if such a symptom occurs in himself or in another member of his
family. Consequently he should be warned that pains are the result of
some type of pathology and that such medication only relieves the symptom
and has no effect whatsoever on the underlying cause.

Actual inflammation of the nerve, itself, or of the nerve root is a differ-
rent matter entirely and a difficult and troublesome condition. This is the
familiar picture of the intractable pain which sometimes follows thoracic
surgery. For the relief of such pain, proper techniques of nerve block should
be attempted. Other procedures have not been found to be of great benefit
in relieving this condition. It is worthy of note that many of these patients
who suffer severe pain have a tendency to secure relief, apparently spontaneously, after the passage of periods of time. It is advisable therefore to attempt to carry the patient over this period with medication or procedures which will relieve the symptom associated always with a definite building up of the general condition of the patient and the improvement of his constitution status. Narcotics are contra-indicated. It is difficult, once such an addiction has occurred, no matter how slight, to determine whether the patient is really suffering pain. The technique of nerve block in this type of case is too detailed to justify discussion here. The reader is referred to the articles which have been written on that subject. A very occasional case may find considerable relief by the use of the analgesic rub following ethyl chloride spray over the proper trigger areas. Methods designed to relieve pain in the chest must keep pace with the demand of the patient that the pain be improved. Since he is not content to wait 24 or 48 hours for relief, procedure and medications must be designed to relieve this pain in a matter of minutes rather than hours.

SUMMARY

The review of the major group of the conditions causing pain which has just been presented illustrates one major point. While the elimination of the pain will depend on the removal or successful treatment of the pathology which has caused it, this pain is a symptom and as such can be safely treated regardless of what its origin may be. It is impossible to over-emphasize the undesirability of narcotics or of chest immobilization in any case of bronchial or pulmonary pathology. The same contra-indication obviously exists in the absence of such pathology since it will be conducive to, if not directly responsible for initiating new disease. Successful treatment of chest pain can be accomplished without any such hazard. The procedures outlined which have been proved effective and safe are the injection of intercostal nerves, anaesthesia of trigger areas and the use of analgesic rubs. It is important to remember the hazard of intercostal injection, not from the drug used, but from the point of the needle, itself, and such injection employed only in suitable cases. In most cases, the anaesthetizing of the trigger area by the method of Trevell, using procain or ethyl chloride will cause immediate relief. Since this relief is relatively transient this procedure should always be followed by an application of the analgesic rub in the manner recommended. In a great many cases—in fact, in almost all of the cases falling into the category of muscle and bone injury, inflammation, pleuritis, or pain referred from inflammatory diseases, the symptom can be completely relieved by the proper application of a suitable analgesic rub following the application of heat. We have not found equal effectiveness in all substances tried. Some of the ointments which advertise their properties as mighty pain killers were found to be relatively ineffective. Much more work needs to be done to determine whether it is absorption of substances through the skin which produces the relief or whether it is some particular action on the nerve endings in the skin. No toxic effects or any other untoward reactions were observed.
In any of the patients who have been treated by this means during the past three years. There would seem to be no reason to fear any such complications and it appears that such an approach to the management of chest pain would eliminate rather than cause complications. It is a technique that is easily applicable and requires no special training in its use.

In this day when we are placing so much emphasis on silent pathology it would not seem necessary to issue an additional warning. Because of certain observed cases, I feel that this must be done. It is the warning that in relieving pain, it is only a symptom that has been removed. The ease of elimination of this symptom does not relieve the physician of the responsibility of following through the necessary steps for adequate diagnosis of underlying pathology. It is important that this be done regardless of the wishes of the patient who frequently believes that once he feels better nothing more is necessary. Cases of bronchogenic carcinoma, tuberculosis, and other types of chest pathology have been found in patients who submitted to x-ray and work-up only on the insistence of the physician, despite their own statement that they felt perfectly well and needed no additional treatment.

RESUMEN

Una revisión del grupo mayor de afecciones que pueden causar dolor señala un punto de importancia grande. Si bien la eliminación del dolor, depende de la supresión de la causa patológica o de su tratamiento efectivo, este dolor, es un síntoma y como tal, puede tratarse seguramente sin tener en cuenta su origen. Es imposible acentuar lo indeseable que son los narcóticos o la inmovilización del tórax en caso de afecciones broncopulmonares. Es evidente que la misma contra-indicación existe en ausencia de esas afecciones, puesto que puede conducir a la aparición de una afeción por sí. Se puede tratar con éxito el dolor torácico sin tanto riesgo. Los procedimientos que se han señalado y que han dado buen resultado, son la inyección de los nervios intercostales, la anestesia de las áreas de “gatillo” y el uso de las fricciones analgésicas. Es importante recordar el riesgo de las inyecciones intercostales, no en razón de la droga usada, sino por la punta de la aguja misma y tal inyección debe usarse en los casos adecuados solamente. En la mayoría de los casos la anestesia de las áreas “gatillo,” por el método de Trevell, usando procaina o cloruro de etilo, causan alivio inmediato. Puesto que este alivio es sólo relativamente transitorio, debe ser seguido del empleo de una fricción analgésica de la manera recomendada. En muchos casos, de hecho en casi todos los casos correspondientes a lesiones óseas o musculares, inflamación, pleuritis, o dolor proyectado de enfermedades inflamatorias, los síntomas pueden ser aliviados completamente por la aplicación de una fricción analgésica después de la aplicación de calor. No hemos encontrado igual efectividad en todas las substancias empleadas. Algunas de las anunciadas como muy efectivas, son relativamente, ineficaces. Falta aclarar si el efecto se debe a absorción a través de la piel, o efecto sobre las terminaciones nerviosas. No se han encontrado efectos tóxicos por estos métodos en los últimos tres años. Tampoco hay que temer
complicaciones al tratar así el dolor torácico. Ahora que se hace especial llamado sobre la patología silenciosa, debemos advertir algo, y es que al aliviar el dolor, sólo se suprime un síntoma. Esto no elimina la responsabilidad del médico que lo obliga a buscar la causa.

Se conocen casos de carcinoma bronquigénico en los que se ha llegado a diagnóstico sólo por la insistencia de un médico, cuando el enfermo había asegurado en que se sentía perfectamente bien, después de aliviado su dolor.

RESUME

L'étude des éléments essentiels qui peuvent causer des douleurs d'illustrer un point capital. S'il est exact que la suppression de la douleur dépend de la suppression ou du traitement efficace de la lésion qui en est responsable, il n'en est pas moins vrai que la douleur est, à elle-seule, un symptôme et peut être traitée à ce titre sans tenir compte de son origine. Il a déjà été suffisamment entendu que les produits calmants ainsi que l'immobilisation du thorax, ne sont pas souhaitables dans les cas d'atteintes broncho-pulmonaires. Même en l'absence d'une telle atteinte la contre-indication existe car ces moyens thérapeutiques peuvent amener l'établissement d'un nouvel état pathologique. On peut obtenir un traitement actif de la douleur thoracique sans prendre de tels risques. Les moyens, dont l'efficacité à été prouvée et qui ne comportent pas de risques, sont l'injection des nerfs inter-costaux, l'anesthésie des zones sensibles-réflexes et l'utilisation d'applications d'emplâtres analgésiques. Il est important de se rappeler que l'injection inter-sostale comporte quelques risques, non pas tant à cause des produits utilisés qu'à cause de la piqûre elle-même; il ne faut donc employer ce procédé que dans les cas où il est particulièrement indiqué.

Dans la plupart des cas, l'anesthésie de la zone réflexogène, selon la méthode de Trevell, donne un résultat favorable immédiatement, soit en utilisant la Novocaine, soit le Chlorure d'Ethyl. Etant donné que cette amélioration est relativement transitoire, ce procédé devrait toujours être suivi par une application d'un emplâtre anesthésique selon la technique recommandée. Dans un grand nombre de cas et en fait dans la plupart de ceux qui concernent les traumatismes musculaires ou osseux, les inflammations, les pleurésies ou les douleurs dues à des maladies inflammatoires, les symptômes peuvent être complètement apaisés par l'utilisation convenable de l'emplâtre anesthésique suivant l'application de la chaleur. L'auteur n'a pas trouvé une efficacité comparable dans tous les produits essayés. Certains, considérés comme très efficaces contre les douleurs, se sont montré assez peu actifs. De nombreux travaux sont encore nécessaires pour déterminer si la guérison provient de l'absorption des substances à travers la peau ou s'il s'agit d'une action particulière sur les terminaisons nerveuses Intradérmiques. L'auteur n'a observé ni effet toxique, ni aucune réaction fâcheuse chez les malades qui ont été traités par ces procédés ces trois dernières années. De telles complications ne sont pas à craindre et un tel procédé de suppression de la souffrance demande à être appliqué dans les douleurs thoraciques d'autant plus que la technique est très facilement réalisable et ne demande aucun entrainement particulier.
A notre époque où l'on sait l'importance que l'on doit accorder aux affections latentes, il ne semblerait pas nécessaire d'ajouter un avertissement supplémentaire. L'auteur pense, toutefois, qu'il faut le faire à la suite de certains cas observés. Il s'agit d'affirmer encore que par la suppression de la douleur on n'a pas supprimé aucun symptôme. La faculté d'éliminer le symptôme ne doit pas libérer le Médecin de la responsabilité de rechercher d'une façon progressive quelle est la lésion sous-jacente afin de faire un diagnostic approfondi. Il est important d'agir ainsi sans tenir compte des désirs du malade qui s'imagine fréquemment qu'à partir du moment où il sent mieux il n'est pas nécessaire d'aller plus loin dans les recherches. On a trouvé des cancers bronchiques, des tuberculoses et d'autres formes d'affections thoraciques chez des malades qui ont été examinés radiologiquement uniquement sur l'insistance de leur Médecin alors qu'ils affirmaient être parfaitement bien et qu'ils n'avaient besoin d'aucun traitement supplémentaire.