Joint Statement of the Ad-hoc Committee of the Korean Society for Preventive Medicine and the Korean Society of Epidemiology on Tobacco Lawsuits on the causal link between tobacco smoking and lung cancer

Ad-hoc Committee of the Korean Society for Preventive Medicine and the Korean Society of Epidemiology on Tobacco Lawsuits

PROCESS AND BACKGROUND

The National Health Insurance Service (NHIS) has filed a damage suit against tobacco producers KT&G, Philip Morris Korea, and BAT Korea (hereafter referred to as “Tobacco Lawsuit”). In the course of the ongoing lawsuit, heated debates are underway regarding the causal relationship between tobacco smoking and lung cancer. The affected individuals of this class action are those with one of three lung cancer types (small cell lung cancer, squamous cell lung cancer, and squamous cell laryngeal cancer), having a smoking history of 20 pack-years or more, and having smoked for 30 years or more.

Given the nature of tobacco smoking as an extremely important risk factor threatening public health, the Korean Society for Preventive Medicine (CEO: Won-Chul Lee) and the Korean Society of Epidemiology (President: Bo Youl Choi), whose core values lie in disease prevention and health promotion, have paid particular attention to the Tobacco Lawsuit, especially to the raised debates about the causal relationship between smoking and lung cancer.

Under the current circumstances, in which the plaintiff (NHIS) and the defendants (tobacco companies) repeatedly mention the value and role of epidemiologic studies in evaluating the causal connection between environmental risk factors and lung cancer in their respective briefs submitted to the court, the Korean Society for Preventive Medicine and the Korean Society of Epidemiology, whose key discipline is epidemiology, have come to have deep concerns and feel the urgent need for a position statement regarding this issue.

To address this issue, the Korean Society for Preventive Medicine and the Korean Society of Epidemiology agreed to jointly constitute an “Ad-hoc Committee of Korean Society for Preventive Medicine and the Korean Society of Epidemiology on Tobacco Lawsuits” (hereafter referred to as “ad-hoc Committee”), whereupon the ad-hoc Committee was constituted with area experts (cf. the annexed list of the ad-hoc Committee members).

After two seminars, continuing discussions by email, drafting a raw version of the statement with comments from ad-hoc Committee members, and coming to an agreement on the language and content, the ad-hoc Committee has drafted a joint statement. After obtaining approvals from the Korean Society for Preventive Medicine and the Korean Society of Epidemiology as well as their respective boards, the ad-hoc Committee publishes this Joint Statement on behalf of both societies.

FOCAL POINT OF THE “CAUSAL LINK BETWEEN SMOKING AND OCCURRENCE OF LUNG CANCER”

In the aforementioned tobacco lawsuit, debates have been held about the role of epidemiology in disease causality in the briefs based on an incorrect understanding of the value and role of epidemiological studies. As epidemiology constitutes the scientific basis of the Korean Society for Preventive Medicine and the Korean Society of Epidemiology, we regard it as the academic and social duty of both societies and the ad-hoc Committee to provide a correct understanding of the role of epidemiology in disease causality.

After reviewing the briefs submitted by the plaintiff (NHIS) and defendants (tobacco companies), the ad-hoc Committee...
viewed the following three perspectives of the “causal link between smoking and lung cancer” to be addressed.

(1) Distinction between specific and non-specific diseases and causal inference.

(2) Relative risk and attributable fraction of smoking for the cancer types involved.

(3) Application of epidemiological study results in a population to individual causation.

Along with these perspectives, the ad-hoc Committee wishes to make an additional point about the role of epidemiological studies in identifying disease causation.

THE DICHOTOMY OF SPECIFIC AND NON-SPECIFIC DISEASES IS DEVOID OF A SCIENTIFIC FOUNDATION

Since the introduction of the concept of specific and non-specific diseases during the case of the “Vietnam veterans” class action lawsuit as “Agent Orange victims” (hereafter referred to as “Agent Orange Lawsuit”), the Supreme Court of the Republic of Korea has continued to use this concept in tobacco lawsuits and exhaust gas lawsuits. The brief of the tobacco companies has emphasized, “lung cancer is a non-specific disease.”

In the Supreme Court ruling on the Agent Orange Lawsuit, a specific disease is defined as “a disease caused by a specific etiology in which pathogenic cause and effect are clearly traceable” and a non-specific disease as “a disease with complex etiologies and mechanisms that develops in complex interactions between genetic factors, such as heredity and predisposition, and non-genetic factors, such as alcohol drinking, smoking, age, dietary habits, and occupational and environmental factors” (Supreme Court Ruling 2014-04-10. Sentencing 2011C22092 Decision). The criteria for a specific disease pointed out in the Supreme Court Ruling of the Agent Orange Lawsuit are as follows: (1) “stemming from one etiology” and (2) a clear correspondence between pathological cause and effect.

Regarding this, the opinion of the ad-hoc Committee is as follows.

First, the terms “specific disease” and “non-specific disease” are not used in the epidemiologic field dealing with disease causation. These terms have no entries in the Dictionary of Epidemiology [1] edited by the International Epidemiologic Association; Modern Epidemiology [2], a textbook of epidemiology; or Gordis’ Epidemiology [3]. Second, these terms are not familiar, even to epidemiologists. While specificity is mentioned as one of the considerations that may be considered in disease causation, dichotomizing diseases into specific and non-specific diseases is not acceptable in the epidemiological discipline that deals with disease causation.

Nevertheless, if a specific disease were to be defined as a disease having necessary and sufficient conditions stemming from a single cause, such a specific disease cannot exist. Even in case of an infectious disease, while it is considered to develop owing to a specific bacterial or viral species as a direct cause, a number of other factors are also involved in disease occurrence. This also applies to tuberculosis and cholera, which are mentioned in the brief submitted by KT&G (2015-01-15, p. 24) as examples of specific diseases. Mycobacterium tuberculosis (MtB) is a necessary condition for tuberculosis (TB), because without MtB, there would be no TB. However, although a high proportion of the Korean population are MtB carriers, only a very low percentage of them are TB patients. In other words, MtB is not a sufficient condition for TB in that TB occurs only under specific conditions, such as malnutrition, hygienic problems, immunodeficiency disorders, or use of immunosuppressant drugs. In addition, in the case of cholera, only some of those infected with Vibrio cholerae show the typical symptoms of cholera accompanied by acute watery diarrhea. Furthermore, most of the leading chronic diseases in Korea, including lung cancer, are not diseases with a single etiology. They occur by complex interactions between various risk factors through various mechanisms. Nonetheless, even though they are not considered “specific diseases,” their causal connection to environmental risk factors cannot be denied. As an example, it is not correct to categorically deny the causal link between occupational radiation exposure and cancers among those occupationally engaged in radiological exposures and thus not recognize these cancers as occupational diseases simply because cancer does not meet the definition of a specific disease. The practice of dichotomizing diseases into specific and non-specific diseases in assessing the effects of risk factors is based on a false understanding of disease causation; it is therefore improper to use it as a basis for assessing the causal link in the Tobacco Lawsuit.

The “clear correspondence between cause and effect” presented as the second criterion for a specific disease is conceptually close to specificity, which is one of Hill’s considerations for causation. For example, if risk factor A is not related to other diseases, but is related to disease B, a specificity can be determined to exist between risk factor A and disease B. Additionally, if risk factor A has a low relative risk in relation to other diseases, but has a very high relative risk in relation to disease B, a specificity can be determined to exist between risk factor A and disease B. Under this logic, the affected group in the Tobacco Lawsuit, i.e., patients with three types of lung cancer who have a smoking history of 20 pack-years or more and who have smoked for 30 years or more may be regarded as having a high level of “specificity” for lung cancer.

In sum, it is not acceptable to dichotomize a disease as being either specific or non-specific. Moreover, if specificity can be determined in terms of magnitude of the causal relationship be-
between a specific etiology (cause) and a disease (effect), the level of specificity between smoking and the cancer types involved in the current Tobacco Lawsuit can be said to be very high.

THE ATTRIBUTABLE FRACTION OF SMOKING TO THE CANCER TYPES INVOLVED IN THE TOBACCO LAWSUIT RANGES FROM 81.5% TO 95.4%

Both the plaintiff and the defendants of the Tobacco Lawsuit have mentioned the relative risk and attributable fraction (also used as attributable risk) in the relationship between smoking and lung cancer. In particular, the tobacco companies emphasize that the data related to relative risk and attributable fraction in Korea are lower compared to foreign data. For example, in the brief submitted in January 2015 (Philip Morris Korea, 2015-01-14, Brief p. 9), based on the data reported in BMC Cancer in 2014 [4], Philip Morris Korea presents that “the population attributable fraction is 53.3% for cigarette smoking.”

Various epidemiological data are presented in the ongoing Tobacco Lawsuit. The parties have presented the population attributable fraction, and the relative risk for lung cancer in the entire smokers; however, these data cannot be recognized as epidemiological indicators worth consideration in the current litigation. In this regard, the ad-hoc Committee presents the following views.

First, the affected group of this class action are patients with small cell lung cancer, squamous cell lung cancer, and laryngeal cancer, who have a smoking history of 20 pack-years or more and a smoking period of 30 years or more. Therefore, the scientific foundation for the arguments advanced in the Tobacco Lawsuit should be focused on the relative risk and attributable fraction of these affected individuals.

Second, the population attributable fraction mentioned in the Tobacco Lawsuit is an indicator that assesses the causal contribution of smoking in the entire population, including non-smokers. Given that the Tobacco Lawsuit involves only lung cancer patients with a smoking history, the population attributable fraction is not an adequate indicator for the Tobacco Lawsuit, and the arguments about the causal relationship between smoking and lung cancer should be based on the attributable fraction among the exposed group (smokers).

Third, the results of the studies conducted in Korea in relation to the cancer types included in the Tobacco Lawsuit are as follows. In a Korean study published in 2005 [5], the relative risks of smokers for the development of small cell lung cancer and squamous cell lung cancer with respect to non-smokers were estimated at 21.7-fold and 11.7-fold, respectively. According to a 2004 study on laryngeal cancer [6], the relative risk of smokers for the development of laryngeal cancer with respect to non-smokers was estimated at 5.4-fold. The attributable fractions of smokers calculated based on the relative risks (= [RR-1]/RR) for small cell lung cancer, squamous cell lung cancer, and laryngeal cancer (RR of 21.7-, 11.7-, and 5.4-fold, respectively) were 95.4%, 91.5%, and 81.5%, respectively. These results demonstrate much higher attributable fractions compared to the attributable fractions (53% to 70%) calculated on the basis of the relative risks of smoking for overall lung cancer without cyto-histological consideration (RR, 2.5 to 5.0).

In sum, in consideration of the cancer types involved in the Tobacco Lawsuit, the attributable fraction of the exposure group (smokers), not the population attributable fraction, is the appropriate indicator of the causal contribution of smoking to lung cancer. Based on the results of domestic research, the relative risks and attributable fractions for the cancer types involved in the Tobacco Lawsuit are much greater than those mentioned so far by defendants in the arguments advanced in the Tobacco Lawsuit.

THE EPIDEMIOLOGICAL RESEARCH RESULTS SHOULD BE CONSIDERED THE MOST IMPORTANT FACTOR IN ASSESSING INDIVIDUAL CAUSAL CONNECTIONS BETWEEN SMOKING AND LUNG CANCER

Tobacco companies have put forward arguments that information regarding the causal link between smoking and lung cancer is based on studies in populations (general causality) and cannot be used for assessing individual causal links (individual causality). Regarding this, the views of the ad-hoc Committee are as follows.

First, the medical society accepts the causal link between smoking and lung cancer as a scientifically proven fact. The rationale for this recognition stems from a variety of studies, not just follow-up studies with population groups. Cohort studies have played an important role in quantifying the extent of damages caused by smoking. On a related note, animal experiments, observation studies with individual patients, and chemical assays have greatly contributed to determining the mechanisms by which smoking induces lung cancer [7]. Such individual observations and experiments have yielded well-established factual findings, such as the occurrence of tumors when “tobacco juice” was smeared on animals’ skin; smoking-induced pulmonary ciliostasis, in which smoking impeded the activity of the upper bronchial cilia and thus triggered the trapping of hazardous substances in the lungs; and evidence of the presence of carcinogenic substances such as benzopyrene in tobacco smoke. The body of knowledge about the causal link between smoking and lung cancer has thus been formed through population studies, animal experiments, observations of individual patients, and
laboratory studies.

Second, the argument that epidemiological evidence cannot be used as information proving the individual causal relationships because they are “in principle, statistics on population groups” contains a serious argumentative gap. In modern clinical medicine, clinical trials with population groups are recognized as the best approach to assess the efficacy of a therapy. If statistics obtained from a population group cannot be applied to individual cases, the inevitable conclusion is that the body of knowledge established through a multitude of clinical trials should not be applied at all in clinical settings in diagnosing patients and selecting therapies. This is obviously an erroneous conclusion that stems from a faulty premise. The general causality verified in a population group is expressed as the sum total of individual causality of the members constituting that population group. Risk factors and causal relationships to a disease can be determined more accurately through epidemiological studies with the affected population group than through individual observations of the members of that group. Therefore, the approach using population groups is not a limitation of epidemiological study; rather, it is a strength that can overcome the limitations of assessing individual cases.

Third, the argument that epidemiological evidence cannot be used as information proving the individual causality because they are population-based statistics contains a serious error in logic. If epidemiological evidence cannot be applied to individuals and the statistical proofs obtained from population group do not have any explanatory power on individual cases, it would indicate that those who have ceased smoking on the basis of the epidemiological evidence have made an irrational decision. Furthermore, if the epidemiological evidence is not applicable among individuals, advice and therapies for tobacco cessation by many physicians in the clinical setting (e.g., “Quit Smoking Clinic”) can also be labeled as useless activities. The claim that the statistical results obtained from population groups cannot be applied to individual cases is tantamount to accusing all those who quit and attempt to quit smoking and physicians who recommend smoking cessation of irrational decision-making, which is not socially and practically acceptable. That smoking is a causal factor for lung cancer is widely established general knowledge, which is also clearly described as a warning on cigarette packs. It is the responsibility of the field of preventive medicine to explore ways and means to prevent disease and promote the health of individuals by applying knowledge about etiologies and causal mechanisms of diseases. It is the duty of all and an important activity of those concerned to spread such knowledge, to warn youth against the dangers of smoking to prevent them from starting smoking, and to guide smokers toward cessation: all of this is based on applying the knowledge obtained from population groups to individuals.

Fourth, it is essential to use the concept of probability of causation in relation to the application of the attributable fractions verified in the data from population studies at the individual level. According to the Dictionary of Epidemiology, probability of causation for a given case is the probability that exposure played a role in disease occurrence [1]. This concept is considered important in establishing legal standards, because it concerns the probability for the case in which a randomly selected patient had developed a given disease from exposure to the factor being investigated [2]. The concept of probability of causation is an important concept presented in epidemiology textbooks. However, it has not been reflected so far in the Tobacco Lawsuit and prior tobacco lawsuits in Korea. Instead, a problematic and erroneous claim has been put forward that the attributable fractions derived from studies with population groups cannot be applied to individual cases, thus revealing a serious problem. The concept of probability of causation is intuitively applied in practical decision-making. For example, an individual who has smoked for 10 years is diagnosed with lung cancer, and his/her physician says that it cannot be verified whether the lung cancer was triggered by smoking because population-based knowledge cannot be applied to an individual, thus implying that smoking can be continued. In this scenario, the physician has certainly failed to do his/her duty as an expert who must consider scientific evidence in a balanced way and make the best possible rational recommendations. In reality, the probability that smoking caused the lung cancer of this patient is very high, and continuing smoking will assuredly exacerbate the course of the disease, which is also understood based on the probability of causation.

Fifth, the information on attributable fractions obtained from epidemiological studies with population groups needs to be considered in the court to assess the probability of causation of lung cancer in the individual patients. The presence of a particular relationship between attributable fractions and the probability of causation has been proven, with the probability of causation being equal to or greater than the attributable fraction [1,2]. In other words, even in a case where the attributable fraction is low, the probability of causation can be very high. For example, the Dictionary of Epidemiology demonstrates that a case with an attributable fraction of 20% can exhibit a probability of causation of 100% [1]. Because probability of causation can be accurately estimated on the basis of a biological mechanism, even in a case where the attributable fraction is very low, its probability of causation can be 100% in the presence of an obvious biological mechanism [8]. In the case of the affected group in the Tobacco Lawsuit, i.e., patients with small cell lung cancer, squamous cell lung cancer, or squamous cell laryngeal cancer who have a smoking history of 20 pack-years or more and have smoked for 30 years or more, they have at-
tributable fractions ranging from 80% to 90% or more. Consequently, if the general causality between smoking and lung cancer is recognized, and the individual patient can be considered to have randomly been selected from the lung cancer patients, the probability of causation of smoking being the cause of the lung cancer of this patient is 80% to 90% or more. It is necessary to assess the probability of causation of individual lung cancer patients using these considerations. Using the concept of probability of causation, a recent study estimated that over 90% of the lung cancer cases in Quebec, Canada are legally attributable to smoking [9].

In sum, the claim that the statistically established causal relationship in population cannot be applied to individual cases is logically and practically problematic. The information on the causal link between smoking and lung cancer can be applied to individual cases with the concept of probability of causation.

THE ROLE OF EPIDEMIOLOGY IN ASSESSING CAUSALITY

In the course of the Tobacco Lawsuit, many different arguments have been put forward regarding the role of epidemiology in determining the causality of a disease. Some of the arguments are not admissible from the viewpoint of experts in the field of epidemiology. The discipline of epidemiology is the academic foundation of the Korean Society for Preventive Medicine and the Korean Society of Epidemiology. As such, it is judged to be of vital importance to provide a correct understanding and increase awareness of the role of epidemiology to the press and general public watching the Tobacco Lawsuit.

The ad-hoc Committee wishes to express deep concerns about the following contents described in the briefs submitted by the parties concerned.

“Epidemiology is a discipline investigating population groups and thus cannot be used as a tool for determining the etiology of the given disease in individual cases. Therefore, even though an epidemiological study quantitatively detected a cause-effect relationship in a particular group, a conclusion drawn does not provide a suitable basis for the application to the individuals belonging to that group. This may be pointed out as an inherent limitation of epidemiology itself” (KT&G, 2015-01-15, brief p. 10).

“Epidemiology is a discipline investigating the correlation between particular factors and a given disease, and the results of epidemiological studies are, in principle, statistics limited to the population group being investigated” (BAT Korea, 2014-12-26, brief p. 12).

In particular, KT&G (brief 2015-01-15) assigned a separate chapter titled “Limitations of Epidemiology” describing the limitations of epidemiology in relation to the arguments made in the course of the Tobacco Lawsuit.

In deriving the causality of a given disease, epidemiology reflects not only the research data derived from the studies with the corresponding population group, but also from animal experiments, observations of individual patients, and laboratory studies, comprehensively considering their contributions. Epidemiology derives the attributable fraction, which means the causal contribution of a particular risk factor to the incidence of the given disease, from the data of population group studies. Additionally, using the concept of probability of causation, it also provides information on the causal contribution to the disease in individual cases. Determining the conclusions drawn from epidemiological studies as statistics that “cannot be applied to individuals” or making claims on the “limitations of epidemiology” is depreciating the broad intellectual activities of epidemiologists to elucidate the causalities of diseases and denying the essential tasks of the preventive medicine.

It is suspected that the reason underlying such irrational claims criticizing the “limitations of epidemiology” and determining the results of epidemiological studies as mere “statistical relations,” is the intent to prevent the results of epidemiological studies regarding the causal link between smoking and lung cancer from being taken as proof of causality in the court. The ad-hoc Committee regards such arguments as an important social issue that can seriously harm efforts of the whole society to prevent diseases and promote health that goes beyond the interest of particular groups.

CONCLUSION

In relation to the ongoing Tobacco Lawsuit, the Korean Society for Preventive Medicine and the Korean Society of Epidemiology constituted an ad-hoc Committee of the Korean Society for Preventive Medicine and the Korean Society of Epidemiology on Tobacco Lawsuits and presented the results of the joint ad-hoc Committee’s discussions in the form of a joint statement as a position paper declaring their opinions. The decision and ensuing activity of the two societies arose from the ongoing debates about the causal link between tobacco smoking and lung cancer in the course of the Tobacco Lawsuit, thereby regarding it as the social duty of the two societies as experts in the disease causation to clarify their positions and publicize their opinions based on the latest scientific discussions. It was of particular importance to bring out the value of epidemiology as a discipline, given the related negative arguments put forward by the parties concerned in relation to the causality of the diseases involved in the Tobacco Lawsuit. It is hoped that this joint statement of the ad-hoc Committee will assist in initiating more clear and scientific debates in the course of the Tobacco Lawsuit.
Ad-hoc COMMITTEE OF THE KOREAN SOCIETY FOR PREVENTIVE MEDICINE AND THE KOREAN SOCIETY OF EPIDEMIOLOGY ON TOBACCO LAWSUITS

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CONFLICT OF INTEREST

The authors have no conflicts of interest to declare for this study.

SUPPLEMENTARY MATERIAL

Supplementary material is available at http://www.e-epih.org/.

REFERENCES

흡연과 폐암의 인과관계에 대한 〈대한예방의학회·한국역학회담배와 폐암 소송 관련 특별위원회의 의견〉

대한예방의학회·한국역학회담배와 폐암 소송 관련 특별위원회

1. 경과와 배경

국민건강보험공단이 담배회사인 KT&amp;G(주)와미니모모카리아(주)B Canterbury를 상대로 한 흡연 피해 손해배상청구 소송(이하 담배소송)이 진행중이다. 이 과정에서 흡연과 폐암 간의 인과성 논쟁이 이루어지고 있다. 이번 소송 대상은 담배로 인한 폐암의 발병과 관련한 폐암과 관련한 인과성 논쟁에 관심을 두고 있다.

1) 경과와 배경

 Actors기구에서 제출한 2015년(2015년) 1년 1월 15일 대한예방의학회 보험소송 및 폐암 조작적 소송 성명문에 따르면, 이 과정에서 흡연과 폐암 간의 인과성 논쟁이 이루어지고 있다. 이번 소송 대상은 담배로 인한 폐암의 발병과 관련한 폐암과 관련한 인과성 논쟁에 관심을 두고 있다.

2) 배경

 Actors기구에서 제출한 2015년(2015년) 1년 1월 15일 대한예방의학회 보험소송 및 폐암 조작적 소송 성명문에 따르면, 이 과정에서 흡연과 폐암 간의 인과성 논쟁이 이루어지고 있다. 이번 소송 대상은 담배로 인한 폐암의 발병과 관련한 폐암과 관련한 인과성 논쟁에 관심을 두고 있다.

2. '흡연과 폐암 발병 간의 인과관계'에 대한 논쟁

2.1. 특이성 질환과 비특이성 질환의 이분법적 구분


2.2. 특이성 질환과 비특이성 질환의 이분법적 구분


2.3. 유해요인과 피해요인


2.4. 종합적 인과관계

4. 담배소송 대상 암종에서 흡연의 영향

담배소송에서 흡연과 폐암의 관계에 관한 상대위험도(relative risk)와 기여위험분율(Attributable fraction)이 현대의 고성숙 및 고흐험군에 해당하여, 특히 담배자들은 소속 또는 후두암의 상태에 기여할 수 있다. 예를 들어, 담배자들은 담배의 영향을 나타내는 경우, A-B간에 특이성이 된다고 판단할 수 있다. 또는 담배자들은 담배의 영향을 나타내는 경우, A-B간에 특이성이 된다고 판단할 수 있다. 이 점에서 담배소송의 대상군, 즉, 소포를 폐암, 폐암과 폐암, 폐암과 폐암의 후두암, 폐암과 폐암, 폐암과 폐암이 20년 이상이 며서 흡연기간이 10년 이상한 환자의 경우 이와 같은 특이성이 매우 높아질 수 있다.

요약하면, 어떤 질환을 특이성 질환과 비특이성 질환으로 반복적으로 구분하는 것은 받아들일 수 없다. 만약 특정 담배자(인)와 질병 발생(결과)의 관계를 측면에서 특이성이 정의된 경우, 흡연과 현재의 담배소송 대상 암종 간에는 특이성이 매우 높다고 할 수 있다.

5. 역학연구 결과

5.1. 흡연과 폐암의 관계

흡연과 폐암의 관계에 대한 정보는 인구집단을 대상으로 한 연구에서 얻어진 것(일반인구에서만 가능)이다. 이를 개인에서의 인과성을 구별하고, 특히 논의된 대로 재활합하는 것이 필요하다. 각각의 역학 연구는 대단히 복잡하고, 다양한 모델을 사용하여 결과를 추정한다. 그럼에도 불구하고, 대량의 연구는 흡연과 폐암의 관계를 화학적 및 생물학적으로 설명하고 있다.

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은행분율이 목표과확률은 매우 낮은 경우 전제로부터 분명한 생물학적 기전이 없어도 개인 사례에서의 인과확률은 100%일 수도 있는 것이다. [8] 이에 담배소송의 대상군으로서 청소방, 폐렴성폐쇄성 폐렴, 폐렴성폐쇄성 후유증, 그리고 흉부소의 20년 이상 흉부소와 30년 이상 흉부소 환자와의, 기존 국내 연구들을 토대로 할 때 기여위험분율은 80%-90% 이상이다. 따라서 환영과 폐암의 일반적 인과성을 인정하고 개별 환자와의 조건을 가진 폐암 환자들 중에서 무작위로 뽑은 것으로 보면, 해당 개별 환자에서 폐암의 원인인 인과확률은 최소한 80%-90%보다 크다. 이런 점이 기여하여 개별 폐암 환자에서의 인과확률에 대한 판단이 이루어질 필요가 있다. 최근 한 연구에 서서는 인과확률 개념을 이용하여 캐나다 캠페주스 폐암환자 중 80% 이상이 법적으로 환영의 기여에 의한 것(legally attributable to smoking)이라고 주장하였다.[9]

요약하면, 인과집단에서의 통계적 판별은 개인에게 적용할 수 없는 경우는 논리적, 철학적으로 문제를 지날 수 있다. 인과집단은 대상으로 얻은 흡연과 폐암의 인과적 관련성에 대한 평가는 인과확률의 형태로 개인에서 적용될 수 있다.

6. 인과성 판단에 있어서의 역학의 역할에 대한 입장

단배소송 과정에서 질병의 인과성에 대한 역학의 역할에 대하여 여러 차례 주장을 등장하였으며, 일부 주장은 역학적 결론에 반대하는 주장이 있으나, 역학은 '일반의학회'와 '한국의학회', '한국전통의학', '한국정신의학', '한국의학회', '한국의과학회'의 각 장비의 학술적 입장을 제시하였다. 역학에 대한 일반인의 해석에 관한 입장을 제시한 범위나 전문성은 달리, 역학에 대한 만한 주장을 만들 수 없는 경우, 흡연의 경우 역학에 대한 일반인의 해석을 바꾸는 것은 매우 중요하다고 판단한다.

특별위원회는 단배소송 준비서면에 등장하는 다음과 같은 기술 내용에 대해 많은 주의를 수반하게 된다. 즉, '역학은 인간집단 대상으로 하는 학문으로서 개별 환자에 대해서는 그 질병발생 원인을 규명하기 위한 수단이 되지 않을 수 있다. 따라서 개인 역학연구의 목표이며 어떤 집단에서 원인-결과의 관계가 명확함으로 간주되었고 해도 그 결과는 개인에 의한 결과를 위한 근거가 될 수 있는 맥락이다. 이 점은 역학 자체에 의한 판단만이 할 수 있을 것이다(KTG&G 2015. 1. 15. 준비서면 104쪽이자)'

'역학은 인간집단을 대상으로 하는 특정 요인과 질병 사이의 상관관계를 연구하는 학문으로서, 역학연구결과를 이와 같이 본질적으로 인과집단을 대상으로 한 통계적 판단' (BAT 고려자 2014. 12. 26. 준비서면 123쪽이자)

특히 KTG&G의 준비서면(2015. 1. 15.)에서는 '역학의 한계'라는 논의의 틀리(chapter)를 설정하고, 여기에 단배소송의 평가들에 대한 역학의 한계를 사례로 설정하고 있다. 역학은 임상학의 수술학으로서 인과집단에서의 연구자료로도 이번 논의가 이루어진 효과적인 증거를 다루는 것이 빠른 흡연의 경우에만 고려하여 인과확률이 높을 뿐만 아니라 병력에 역학적 인과관계를 발견하는 것이 논리적, 철학적으로 적절하다고 한다. 이는 분명 과학적 증거를 근거로 고려한 전문가로서의 책임임에도 불구하고, 없다면 전문가로서의 결정적이고 철학적인 판단을 다루더라도 이를 통제할 수는 없다. 이는 흡연자의 경우를 인과확률을 건축함에 있어서의 역학의 한계가 높은 바람에 대한 것이며, 흡연자의 경우를 흡연력이 인간의 경우를 높고 있다. 이는 인과관계의 임무를 수행하기 위한 학문으로서 무엇과도 관련시키지 못한다. 역학은 인간집단 대상으로 하는 학문으로서 개인에 대해서는 그 질병발생 원인을 규명하기 위한 수단이 되지 않을 수 있다. 따라서 개인 역학연구의 목표이며 어떤 집단에서 원인-결과의 관계가 명확함으로 간주되었고 해도 그 결과는 개인에 의한 결과를 위한 근거가 될 수 있는 맥락이다. 이 점은 역학 자체에 의한 판단만이 할 수 있을 것이다(KTG&G 2015. 1. 15. 준비서면 104쪽이자)'

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인과성의 증거를 채택하지 못하도록 하려는 의도가 숨어 있는 것으로 보며, 일부 집단의 이해관계를 넘어서 우리 사회 모든 사람의 질병예방과 건강증진을 위한 노력에 심각한 손실을 가져올 수 있는 중대한 문제라고 특별위원회는 판단하고 있다.

7. 맺음말

현재 진행중인 담배소송과 관련하여 대한예방의학회와 한국역학회는 <대한예방의학회·한국역학회 담배와 폐암 소송 관련 특별위원회>를 구성하였고 논의 결과의 의견서를 제시하게 되었다. 양학회의 이와 같은 결정과 활동은 담배소송에서 흡연과 폐암의 인과성에 대한 논의가 이루어지고 있는 데에 따른 것으로, 질병의 인과성에 대한 질문을 가진 양 학회가 국내외 문헌, 인과성에 대한 최신의 과학적 논의를 토대로 의견을 피력하는 것이 양학회의 사회적 책임으로 판단하였기 때문이다. 특히 담배소송 과정에서 질병의 인과성 문제를 다루는 역학이라는 학문 분야의 가치가 논의되고 있다는 점도 중요하였다. 특별위원회의 의견서가 향후 담배소송에서 보다 명료하고 과학적인 논의를 위하여 도움이 되기를 바란다.

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