

# Referring Physicians' Tendency to Collaborate With Radiologists in Managing Contrast Media–Related Risk Factors

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## **Abstract**

Purpose: The aim of this study was to investigate the tendency of referring physicians to collaborate with radiologists in managing contrast media (CM)–related risk factors.

**Methods:** The study was conducted at a single academic hospital. Among 150 referring physicians from various specialties, 51 referring physicians (34%) responded to the invitation letter asking for an interview with a radiologist. During the interview, a modified form of the Control Preferences Scale was administered, in which there were five preferences (each displayed on a separate card) that ranged from the fully active to fully passive involvement of referring physicians in managing CM-related risk factors. A descriptive analysis was performed through categorization of the results depending on the respondents' two most preferred roles.

Results: Thirty-six referring physicians (70.5%) preferred a collaborative role, and 15 (29.4%) preferred a noncollaborative role (i.e., remained on either the fully active or fully passive side). Among the referring physicians who preferred a collaborative role, the most common response (n = 15 [29.4%]) was collaborative-active.

Conclusions: Referring physicians at the authors' institution have basic cognitive and motivational-affective tone toward collaboration in future teamwork aimed at the management of CM-related risk factors. A modified form of the Control Preferences Scale, as in this study, can be used to investigate the tendency of referring physicians to collaborate with radiologists. The results are discussed from ethical and legal perspectives.

Key Words: Control preferences scale, contrast media, team building, organizational psychology

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## INTRODUCTION

In health care management, total quality is based on three principles: customer focus, continuous improvement, and teamwork [1]. According to Salas et al [2], teams are defined as "interrelated individuals that are tasked to accomplish a common goal" [2]. Team building requires four elements: (1) goal setting, (2) establishing interpersonal relations, (3) role clarification, and (4) problem solving.

In radiology, one of the issues that requires effective teamwork is the management of contrast media (CM)–

related risk factors. With the advent of the currently available CM, the prevalence of reactions is relatively low; however, their extensive use in medical practice necessitates that patients who are at risk be detected before CM administration [3]. At our institution, this issue has been unresolved because of a lack of role clarification that precludes effective teamwork. In routine practice at our institution, the only information relayed from referring physicians is the glomerular filtration rate, which helps detect risk for CM-induced nephrotoxicity and nephrogenic systemic fibrosis. After the patient reads an enhanced consent form, a radiology technician briefly asks the patient about other risk factors (such as history of previous reactions and hyperthyroidism), so that the radiologist is informed in case a risk factor is detected. However, this approach has major drawbacks. First, patients may not be fully aware of their medical conditions to give sufficient information about risk factors. This

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assumption holds true especially in patients with low literacy. Second, it should be a physician, not a technician, who communicates with patients directly because, from a legal perspective, technicians do not represent one of the parties involved in risk management. At this point, an important question remains unanswered: How should the roles of the radiologist and the referring physician be demarcated so that effective teamwork can be established to manage CM-related risk factors? The European Society of Urogenital Radiology (ESUR) suggests that referring physicians inform radiologists about any risk factors by completing standard questionnaires when they request contrast-enhanced examinations [4]. This approach provides role clarification in teamwork in which the referring physician identifies the risk factors; in this way, the radiologist can be prepared for acute-onset reactions or take measures to prevent late-onset reactions. However, although the ESUR suggestion promotes cognitive interaction among team members, effective teamwork includes not only cognitive but also motivational-affective components such as willingness to respond to the task [5,6].

In this study, we investigated the tendency of referring physicians to collaborate with radiologists in managing CM-related risk factors. The study was conducted at an institutional level by using a modified Control Preferences Scale (CPS). Our findings may be helpful in assessing the cognitive and/or motivational-affective tone of referring physicians to participate in future teamwork aimed at the management of risk factors.

#### **METHODS**

#### **Ethics**

The study was approved by the hospital's ethics committee, and informed consent was obtained from all participants.

# Study Setting

The study was conducted at a single academic hospital between May and July 2017. Initially, an invitation letter was sent to 150 referring physicians from various specialties, asking their permission for an interview with a radiologist. Fifty-one referring physicians (9 women and 42 men; age range, 34-59 years) from various specialties responded to the letter, for a response rate of 34%. The specialties included internal medicine (n = 19), pediatrics (n = 6), urology (n = 5), cardiology (n = 3), general surgery (n = 7), chest surgery (n = 1), gynecology (n = 2), dermatology (n = 1), emergency medicine (n = 1),

chest diseases (n = 3), orthopedics (n = 1), and plastic surgery (n = 1). Overall, there were 18 referring physicians (35.2%) from surgical branches and 33 referring physicians (64.8%) from nonsurgical branches.

## Interview and Modified CPS

Interviews were conducted in an isolated environment and by the same researcher (H.İ.). The process consisted of a brief introduction to the aim and scope of the study, the collection of demographic data (age, gender, and specialty), followed by the administration of a modified CPS.

The CPS was developed by Degner et al [7] to assess "the degree of control an individual wants to assume when decisions are being made about his/her medical treatment." Although it was originally developed for patients with life-threatening illnesses, it can be applied in a variety of health care decision-making situations. The scale consists of five separate cards that display five different preferences respondents can assume. Each preference is described by a statement on a card, ranging from fully active to fully passive, represented by letters A to E, along a continuum. Subjects make successive paired comparisons between the preferences displayed on the cards to reach a preference order. The results are ordered permutations of the letters that represent the five cards (such as CDBEA or ABCDE or EDCBA). However, only a small subset of permutations are transitive in nature, which ensures that the subject has understood the construct regarding "the degree of control an individual wants to assume." For example, ABCDE represents a transitive permutation, whereas AEBCD does not because the person's two most preferred roles should not include two extremes (A and E) along the continuum, showing that the subject did not understand the construct.

In this study, we modified the CPS by changing the construct and the statements that define the control preferences. The construct was expressed by a simple question: "How do you like to share this responsibility with the radiologist in the management of CM-related risk factors?" Before asking the question, the interviewer introduced no specific task to the referring physician about strategies and role demarcation in problem solving, including the suggestion in the ESUR guidelines. The statements that define the control ranged from a fully active (A) to a fully passive (E) role assumed by referring physicians. The statements, their corresponding role, and the representing letters are given in Table 1. During the administration of the modified CPS, the cards were

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