

# Biases and Errors in Interventional Radiology

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Biases are common in the medical field, perhaps varying in the degree and extent across the specialties. Bias is a strong inclination of the mind or a preconceived idea for or against something, which is unsubstantiated by data or evidence. Biases are further linked to errors.

Physicians are aware of bias in decision making. There are several publications with reference to biases in different medical specialties, but none yet in the practice of interventional radiology (IR). Bias can affect our practice at various levels, including while arriving at the diagnosis, deciding to treat or not to treat, choosing the appropriate treatment, and managing the complications. Pat Croskerry has published an extensive list of 50 different biases in alphabetic order.<sup>1</sup> We can easily find examples for many of them in the field of IR. An “ambiguity effect” plays a role when one is sure of the diagnosis but tends to make a diagnosis that is more familiar. There may be a lesser threshold for considering a bronchial artery embolization for a patient with hemoptysis hailing from a tuberculosis-endemic region. Rare conditions such as congenital portosystemic shunt may be underdiagnosed, whereas chronic liver disease may be overdiagnosed due to easy “availability” of the diagnosis. “Ego” and “overconfidence” biases are self-explanatory. Perhaps a “feedback sanction” plays a major role in IR. A series of successes in a particular interventional procedure may result in lower threshold to accept the next patient for the procedure, whereas landing up in a major complication may perhaps make us reluctant in choosing that procedure again. The acceptance for a similar procedure may be delayed or at least will result in a longer time in taking consent. Similar effects probably follow after litigations. If an important “information” is from a trusted source, one may be biased and fail to check whether antibiotic has been given to a patient prior to a percutaneous biliary drainage. A “premature closure” is a strong bias that can result in missed diagnoses or wrong management, where one arrives at a conclusion without obtaining all the relevant information. It could be an embolization process, in which only some feeders are embolized.

A “yin-yang out” refers to a situation when a patient undergoes exhaustive investigations. It could be an invasive diagnostic cerebral angiogram to look for intracranial aneurysm even when the relevant computed tomography (CT) and cerebrospinal fluid (CSF) analysis are negative or performing a spinal angiogram in case of myelopathy, without any evident vascular flow voids on magnetic resonance imaging. A “VIP syndrome” occurs when a very important person (VIP) arrives for medical care and the status of the patient affects the medical management.<sup>2</sup> The general tendency is to overinvestigate, so that one does not “miss anything.” This phenomenon may be universal. As we know, invasive tests are not risk free. A “VIP” need not always be a rich person or a celebrity; he or she could even be an “important colleague” working in the same hospital. Undue “VIP” care will affect the treatment of other patients as workforce and resources are directed toward the “VIP.” If the IR physician is under pressure to start another procedure or attend to another commitment, there could be a subconscious tendency to “finish it early” rather than “finish it safely.” A similar effect could result when the entire embolization material gets exhausted from the store. Bias may sometimes shift the polarity. An IR staff that is careless about the “invisible” radiation may suddenly be overcautious after seeing a bad radiation injury.

Bias is as relevant to IR practice as in any field of medicine. Too much faith placed in a single opinion may be risky when compared with evidence-based practice. Bias may be intrinsic to the human nature and may not always be avoidable, but we should be aware of it and try to minimize it in our daily clinical practice.

## References

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