Science Finally Winning The Day In Glyphosate Cases

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October 11, 2022

After many years of sensational reporting about the cancer risks from Bayer's Roundup weedkiller, with the main ingredient of glyphosate, it appears that the tide may be finally turning in the courtroom. When presented with complex science, juries understand it and get it right.

Image by Erich Westendarp from Pixabay (https://pixabay.com/photos/agriculture-plant-protection-1359862/)

The Wall Street Journal recently reported that a St. Louis jury ruled in Bayer's favor this September, delivering the company its fifth consecutive trial victory. The company lost three trials between 2018 and 2019, but now the momentum seems to be shifting. One of the reasons for the shift is that Bayer is focusing on the scientific question of whether Roundup causes cancer and providing more robust data to juries.

Background

Roundup, with the main ingredient of glyphosate, is the world's best-selling weedkiller and has been used for over 45 years. It is effective against many weeds and has lower toxicity than other products it has replaced (such as atrazine and alachlor). As discussed in my previous article (https://www.acsh.org/news/2021/06/14/emperor-iarc-has-no-clothes-15600), in 2015, the International Agency for Research on Cancer (IARC) classified glyphosate as "probably carcinogenic to humans" - the only agency to conclude that glyphosate poses a carcinogenic risk. (13 other agencies concluded that glyphosate is not carcinogenic.) IARC excluded the results from the largest and most comprehensive study on human exposure to glyphosate and cherry-picked results from animal studies to support their "probably carcinogenic to humans" classification.

Trial lawyers used IARC's classification as the key evidence supporting the contention that Roundup is responsible for causing cancer, particularly non-Hodgkin's lymphoma.

What is the New Data?

It was surprising and encouraging to hear that Bayer is using Dr. Cristian Tomasetti, an applied mathematician, as an expert witness at these trials. I have previously written (https://www.acsh.org/news/2021/06/24/randomness-life-bad-luck-cancers-15629) about his research. In 2015, Dr. Tomasetti published a study (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4446723/) based on cutting-edge information on the number of stem cell divisions in human organs obtained from the Human Genome Project. The study concluded that cancer could be ***caused by random mutations that occur during DNA replication in normal, noncancerous stem cells***. As the number of stem cell divisions within an organ increases, so can the number of random mutations. As a result, the number of stem cell divisions can explain variations in cancer risk among organs and tissue.

In addition to heredity and environmental/lifestyle factors, cancer could be caused by random mutations; "bad luck" cancers.

Dr. Tomasetti was condemned by much of the scientific establishment for this research. IARC issued a press release (https://www.iarc.who.int/wp-content/uploads/2018/07/pr231_E.pdf) saying that "they strongly disagree with a scientific report on the causes of cancer published by Tomasetti and Vogelstein" and the Collegium Ramazzini, an international scientific society concerned with environmental and occupational health, "condemns Tomasetti's remarks as dangerous to public health."

The reason for these condemnations is their belief that this article would detract from efforts to identify causes of cancer and have a negative effect on preventive actions to reduce the incidence of cancer.

What Has Happened Since?

In 2017, Dr. Tomasetti published a follow-up study (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5852673/) that confirmed the results of the first article. His results are now widely accepted (https://www.science.org/doi/10.1126/science.aax5525) in the scientific community, and researchers worldwide are using his results to further the search for how cancer develops from the first mutation to benign and finally to tumorous growth.

In the Roundup trials, Dr. Tomasetti said that about 90% of the mutations found in non-Hodgkin's lymphoma are attributable to random replication errors. These errors arise spontaneously, and he has asserted that Roundup is not responsible.

Conclusions

It is encouraging that Tomasetti's data and work were understandable and acceptable to several juries. For many years, trial lawyers have believed that complex science, such as that done by Dr. Tomasetti, is too complicated for the average person to understand and should be kept out of the courtroom. It is encouraging that when data are presented in an

understandable fashion, the jury system works well. It is heartening to see this development in the case of glyphosate. It should encourage all of us in the scientific community to redouble our efforts to present science in an understandable fashion.