WEBSERIES REVIEW

Kaala Paani and epidemic ethics: hit or miss?

VIJAYAPRASAD GOPICHANDRAN

***Kaala Paani,* Directors: Sameer Saxena, Amit Golani, Producer: Sameer Saxena, Writers: Biswapati Sarkar, Nimisha Misra, Sandeep Saket, Amit Golani, Netflix web series, Season 1 in 7 episodes, Hindi, Oct 2023.**

Kaala Paani is a highly-rated Hindi language drama series of 2023, streaming on Netflix. I started watching the series with a lot of interest as the promotions promised a serious portrayal of an epidemic and a survival drama revolving around it. By the end of the seven episodes, I was left marveling at the scenic beauty of the Andamans which I have never visited, and the stellar performances of the cast; but did not find myself introspecting on the ethical issues and dilemmas portrayed in it. Why it didn't set off introspection is explained below.

The plot

A mysterious illness is identified by the Chief Medical Officer of the Andaman and Nicobar Islands. She argues that this is the re-emergence of an old illness reported several decades ago in the islands. After an initially lukewarm response to her warnings, the government soon panics when the deaths start mounting. They label this illness a "leptospirosis-like haemorrhagic fever" (LHF). The rest of the series is about going in search of a preventive strategy, a cure and a narrative of the factors leading to re-emergence of this infectious disease from ecological, evolutionary and anthropological perspectives.

The drama

The series is a riveting drama. It holds the attention of the viewer and is potentially binge-worthy. The performance by Amey Wagh as the Sub Divisional Police Officer (SDPO) with grey shades to his character, a dark comic sense, and brilliantly expressive eyes, stole screen space whenever he appeared. The human elements and emotional complexity in the drama make it interesting and engaging.

The science

The faulty science is a major reason why the series failed to grip me. One may argue that fiction does provide space for artistic liberties. But even such liberties must have their own logic and sound reasoning. The scientific points presented here suffer from a lack of such logic.

First, the idea of drug resistance is invoked in the story to explain why the infection is difficult to treat. A crucial element of the plot is that drug resistance emerged because of digging up of the graves of the indigenous tribal people, who had died decades ago, of the same infection. The SDPO pulls out a newspaper clipping which indicates that burial grounds are brewing spots for antimicrobial resistance and accuses the concerned company of digging up the burial plot for frivolous reasons. Some studies have shown that the leachate water from burial grounds carries resistant bugs which can contaminate surface and ground water [1]. However, this happens in areas with high levels of antimicrobial use to which the bacteria are exposed, leading to the emergence of antimicrobial resistance. This seems highly unconvincing in a remote indigenous community in the Andaman and Nicobar Islands, with little antimicrobial use several decades ago.

Second, a junior research scientist, Ritu Gagra, tries to isolate a particular peptide from the cerebrospinal fluid of the indigenous tribal population as potential treatment for the infection. There is currently a lot of interest in antimicrobial peptides forming part of the innate immunity of plants and animals and their potential use in treatment [2]. The series creates confusion by floating two conflicting theories of how the indigenous community became immune to the deadly infection. One theory suggests it is the consumption of the local echinacea plant, which has anti-bacterial properties; the other that they have an innate immunity offered by an antimicrobial peptide in their bodies. In one episode depicting the past, a young tribal boy, who is infected and abandoned by the tribe, is shown to survive after consuming echinacea leaves, suggesting that this plant is a cure for the disease. Then, suddenly, Ritu Gagra is seen explaining that the antimicrobial peptide found in this plant is present in the cerebrospinal fluid of the tribes transmitted across generations even after the plant has become extinct. How the peptide entered the

Author: **Vijayaprasad Gopichandran** (vijay.gopichandran@gmail.com), Medical and Public Health Consultant, Rural Women's Social Education Centre, Chengalpettu, Tamilnadu 603109, INDIA.

To cite: Gopichandran V. *Kaala Paani* and epidemic ethics: hit or miss? *Indian J Med Ethics*. 2024 Jul-Sep; 9(3) NS: 252-253. DOI: 10.20529/IJME.2023.079

Published online first on December 20, 2023.

Manuscript Editor: Sanjay A Pai

cerebrospinal fluid when the plant itself is extinct, and was transmitted across generations of tribals is not explained. Moreover, the infection spreads through water, and largely affects the lungs. So, the presence of the peptide in the brain makes no sense. An innate defense system is supposed to protect either the port of entry, the intestine, or the place where the bacterium will lodge and cause damage, ie, the lungs.

The public health aspect of responses to the outbreak is also faulty. Early in the series they report that the infection is waterborne. The typical responses to a water borne outbreak are — creating awareness about the contamination of the water, preventing access to swimming and other water sports, disinfection of water at source, and screening and isolating people who are infected [3]. However, here we are shown a lockdown, physical distancing, wearing masks and attempts at evacuating people to a different island — all typical public health measures for airborne outbreaks. This point is misleading. One may possibly defend antimicrobial peptide transmission across generations as artistic licence, but there is no logical way one can explain following airborne disease precautions for a waterborne epidemic.

The ethics

Although the background is one of shaky science, the plot addresses some interesting ethical dilemmas. The famous "trolley problem" is introduced in the second episode of the series. Lieutenant Governor (LG) Qadri, played by Ashutosh Gowariker, explains the trolley problem and raises the question, "Will you flip the switch that would sacrifice one person to save five people?" [4] There is a call back of this "flipping the switch" later in the series, when they are trying to extract the potentially useful peptide from the cerebrospinal fluid of the surviving 400 indigenous tribal people. The officials discusses harvesting the cerebrospinal fluid, thus causing potentially fatal harm to the vulnerable tribal people, to save the lives of thousands of infected people. The LG is asked by his subordinates if he will "flip the switch". Initially he hesitates, as the indigenous community had long ago saved his life as a young naval officer. Then he makes a utilitarian decision to round up the tribal people to save the larger population. There are repeated references to Darwin's theory of evolution, arguing that natural selection will favor the fittest and not the vulnerable tribal people, who have not evolved or changed over the centuries. But in the last scene of the first season, the tribals are seen mounting a very brave and strategic fight against the police who are attempting to round them up. This throws open the question of who is counted as the fittest? Is it those who have the guns and technology to conquer, or is it those who have the social cohesion and familiarity with the forces of nature to resist?

Some characters in the series are shown taking strong moral positions. Vinayak's mother, takes the position of supporting the vulnerable tribal population; while Jyotsna, the nurse, refuses to let Santosh's infected daughter travel to safety during evacuation, out of concern for the greater common good. Ritu Gagra shows great courage and moral conviction when she disobeys the orders of her superiors and reports the outbreak to the mainland, because she believes that is the right thing to do. The Lt Governor is the main bearer of the moral dilemma of whether to sacrifice the tribals to protect the larger population of the islands.

Throughout the series, one of the recurrent themes is the conflict between industrialisation and nature, in this case the conflict between the large corporation and the natural habitat of the Andamans. In a show of irony, the wife of the CEO of the company contracts the infection, and a number of moral challenges follow, as a metaphor for the conflict of the environment versus economic development.

Important social issues are depicted in the series. Dr Singh, the committed female doctor with a disability, is seen having to struggle to get her points across through the patriarchal mindset of government officials. Ritu Gagra's indifferent treatment by the doctors in the medical establishment — because of her caste, gender, and her being a non-medical doctor — sends a clear message about the power hierarchies in medicine. The negotiations that take place to protect the infected wife of the CEO expose the skewed power dynamics between the state and the powerful corporation. The state is coerced to compromise the safety of the tribals to protect the CEO's wife, in return for sanctuary on the private island for all the uninfected population who will be evacuated. Though these ethical and social messages are well intentioned, some of them are presented in a jarring manner — with a backing of flawed science — so that they fail to convince.

Overall, as a survival drama series, *Kaala Paani* is very interesting and a recommended watch. But its many scientific errors and lapses cannot just be dismissed as artistic licence. The ethics woven into the plot seems contrived in certain places. Given the over-dramatised and implausible science, the ethical discussions do not ring true and fail to stimulate a deeper introspection.

Acknowledgment: *I would like to acknowledge the critical inputs by Dr Amar Jesani on an earlier draft of this review which have substantially improved it.*

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