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## Role of biologicals in pandemic

10 November 2009 | News

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# Role of biologicals in pandemic

*The world is facing an unprecedented threat from swine flu, caused by the now well-known H1N1 virus. Biological preparations can play a very effective role in combating the situation*

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Initially, we saw some actions and some knee-jerk reactions to swine flu threat. Initially, masks covering people's faces in cities and villages were a common sight. Later it seems to have given way to complacency. Media reports on swine flu have also taken a break. May be, the proverbial honeymoon period is over. Everyone is talking about one particular anti-viral drug. We have no idea of the generic name of the drug, but we hear about the brand names. Vaccines are being developed and tried, so we hear about them. Fears of the virus outsmarting the scientists by mutating are also aired.

The article is not being written forgetting the fact that vaccines are also biologicals. In this context, it is worth spending a little time on the mechanism of infections, and the way human body is dealing with it. Any infection ultimately is cured by the body itself. Drugs basically prevent the proliferation of the bacteria or virus and the body takes over the rest. There is an eternal fight going on between innumerable disease-causing organisms and our body's 'army'. And in order to keep us healthy or disease-free, these fighter cells with the help of certain proteins and particular substances present in our blood and body fluids are engaged to combat disease-causing organisms everyday. If the battle is lost, we fall ill, and if our 'army' keeps winning, we remain healthy.

Biological preparations can play a very effective role in combating the situation. Vaccines are the best bet. It is the best preventive measure. It takes a little time to show the effect. There is a gap between the introduction of the vaccine and its

desired effect of protection. This gap can be bridged by passive immunization.

To understand this situation, we need to go back to the basics of immunology. This is intended only as a reminder to the readers. Any infection, exposure or vaccination leaves the memory in our body with a complex mechanism so that the system is pre-warned to circumvent any such eventuality in future, and this is termed as immunity. The word ‘immune’ literally means ‘exempt’. That is to say, the process exempts us from the vulnerability to the particular infective agent. The primary immune response takes about a week to produce sufficient amount of antibodies to neutralize, kill or eliminate the invading infectious agents. This time, gap is taken care of by the use of drugs and medical intervention. Antiviral or antibacterial drugs either kill or prevent their replication.

This gap can be bridged by passive immunotherapy. Let us get familiar with few of the complicated jargon scientists use. Starting with the word ‘antigen’, generally, a foreign substance when introduced knowingly or otherwise, is capable of starting an immune response resulting in the production of ‘antibodies’. Antigens could be a whole or parts of bacteria, viruses and fungi. While antibodies are proteins capable of reacting against the particular antigens, which are produced by the immune system of our body. They are very specific, and that is the reason why we have to get all those injections for various diseases. That is also the reason why we are waiting for a new vaccine for swine flu which has to be very specific.

It is common knowledge among medical and biology students that the immune response takes about a week, and in the meantime, passive immunization can be the life saving measure. As a precaution, human blood of healthy individuals containing these antibodies in a pure and concentrated form can be used to ‘bridge’ the gap. By that time, the body takes care of itself with the support of drugs and medical care given. This method could substantially reduce the complications. To be more specific, along with life support systems and antiviral drugs, use of immune serum globulins or ready-made antibodies can be effective. This is a well-known and proven method of treatment for viral and bacterial infections.

Immunotherapy in conjunction with antibiotics or antiviral preparations could be a good alternative. There are several such preparations for intra-muscular and intra-venous administration. Probably, physicians and policymakers can give this a thought. However, this line of treatment is not mentioned by any media reports so far. Cost and the efficacy of the available treatments may need closer examination and evaluation. At the same time, there is nothing wrong in exploring this line of treatment that is based on biologicals.

Scientific community should work on exploring the possibility of alternative cheaper antiviral drugs, other systems ofmedicine and newer lines of treatment. Swine flu is predicted to play long innings.