



# Medical Bulletin

## News You Can Use

### New Tool Accurately Predicts Risk of Chronic Disease

Chronic illness affects millions of people worldwide every year and accounts for a large proportion of the total number of deaths. Researchers from the Intermountain Medical Center Heart Institute in Salt Lake City, Utah, USA, have recently designed a clinical tool that accurately measures the risk of chronic illness.

The risk score, called the Intermountain Chronic Disease Risk Score (ICHRON), is the result of routine blood tests combined with the age of the patients in primary care. According to the researchers, it can predict who will receive their first diagnosis of a chronic disease within 3 years of the test. Some of the chronic illnesses this test accounts for include diabetes, kidney failure, chronic obstructive pulmonary disease, and dementia, as well as a range of cardiovascular diseases such as peripheral vascular disease, atrial fibrillation, stroke, heart attack, and heart failure.

Women who scored moderately on the ICHRON score were three times

### Greetings from Blue Cross Laboratories!

Dear Colleagues,

Hope all of you are in the best of health and spirit !

*It gives me immense pleasure and satisfaction to present you with the second issue of the Blue Cross Medical Bulletin for the new financial year.*

*This issue will have you updated on a few recent medical developments, and clinical insights involving novel discoveries/avenues in diverse therapeutic categories. We have also included a brief tutorial. I am optimistic that these topics will make for interesting reading !*

*I am sure you would enjoy reading this edition of the Medical Bulletin as you did in the past. Please do remember to send in your feedback, so that we can incorporate the same in future editions.*

Happy Reading!

Cheers!

Best wishes & Warm regards,

**Dr. Madhurima Dhar** MBBS, MD (Delhi), MS (NJ, USA).  
Dy. GM-Medical Services & Editor-in-Chief



Call:  
022 66638043

e-mail:  
m.dhar@bluecrosslabs.com

Correspond:  
Blue Cross Laboratories Pvt Ltd.  
Peninsula Chambers, Ganpatrao Kadam Marg,  
Lower Parel, Mumbai 400 013

moderately were 5.6 times more likely to receive a diagnosis of chronic illness. The research team hope that the ICHRON score will help clinicians to predict and inform the patients of the chronic disease risks that they are faced with, so that patients can make

strokes that result from high blood pressure or unmanaged diabetes.

3. Patients' healthcare costs will decrease dramatically.

The researchers hope ICHRON can be used to help identify patients who are at a higher risk for a chronic



more likely to receive a chronic disease diagnosis compared with their low-score counterparts. Female patients with a high ICHRON score were 11 times more likely to develop, and be diagnosed with, a chronic disease. Male patients with a high ICHRON score were 14 times more likely to be diagnosed with a chronic condition, compared with their lower-scoring peers. Additionally, those who scored

lifestyle choices that will prevent development of these illnesses.

The Researchers see three major potential benefits:

1. Patients will live healthier lives as they avoid, or proactively learn to manage chronic diseases.
2. They'll be better able to avoid serious complications that often result from unmanaged chronic diseases, such as heart attacks or

disease and therefore need more personalized care. For example, if a patient received a high ICHRON score, the clinician could plan to see the patient more frequently or be more aggressive with treatments, or if the patient had a low ICHRON score, they could potentially be seen less often or their physicians could forego a test they were considering.

SHORT TUTORIAL

## Pyrexia of Unknown Origin (PUO)

**D**efinition: PUO refers to a body temperature  $\geq 38.3^{\circ}\text{C}$  ( $101^{\circ}\text{F}$ ) not resulting from transient/self-limiting illness, or disorders with clear localizing symptoms or signs, or with abnormalities on common tests (i.e., chest x-ray, urinalysis, or blood culture).

**PUO is classified into 4 distinct categories:**

- **Classic PUO:** Fever for > 3 weeks with no identified cause after 3 days of hospital evaluation or  $\geq 3$  outpatient visits.
- **Noscomial PUO:** Fever in hospitalized patients receiving acute care and with no infection present or at admission if the diagnosis remains uncertain after 3 days of appropriate evaluation.
- **Immune-deficient PUO:** Fever in patients with immunodeficiency if the diagnosis remains uncertain after 3 days of appropriate evaluation, including negative cultures after 48 hours.
- **HIV-related PUO:** Fever for >3 weeks in outpatients with confirmed HIV infection or > 3 days in inpatients with confirmed HIV infection if the diagnosis remains uncertain after appropriate evaluation.

### Etiology

Causes of PUO are usually divided into 4 categories:

- **Infections (25 to 50%)**
  - o Most common cause of PUO.
  - o Etiologies: Abscess, HIV, CMV, EBV, tuberculosis (disseminated), infective endocarditis, osteomyelitis, Lyme disease, malaria, brucellosis, Q fever, toxoplasmosis, trichinosis, typhoid fever.
- **Connective tissue disorders (10 to 20%)**
  - o SLE, RA, giant cell arteritis, vasculitis, polyarteritis nodosa, polymyalgia rheumatica, and juvenile RA of adults (adult Still disease).
- **Neoplasms (5 to 35%)**
  - o The most common neoplastic

causes are lymphoma, leukemia, renal cell carcinoma, hepatocellular carcinoma, colon carcinoma, and metastatic carcinomas.

- o Incidence of neoplastic causes of PUO has been decreasing, probably because they are being detected by ultrasonography and CT, which are now widely used during initial evaluation.
- **Miscellaneous (15 to 25%)**
  - o Important miscellaneous causes include drug reactions, alcoholic cirrhosis, deep venous thrombosis, recurrent pulmonary emboli, sarcoidosis, inflammatory bowel disease, and factitious fever.
- **No cause of PUO is identified in about 10% of adults.**

### Tests to be done

- o Even if done earlier, these tests may suggest a helpful trend:
  - CBC with differential
  - ESR
  - Liver function tests
  - Blood and fluid / aspirate cultures (ideally before anti-microbial therapy)
  - HIV antibody test, RNA concentration assays, and PCR assay
  - Tuberculin skin test or interferon-gamma release assay
  - Organism-specific tests, such as PCR and serologic titers (acute and convalescent), can be done subsequently if needed.
  - Serologic tests, such as antinuclear antibody (ANA) and rheumatoid factor, are done to screen for rheumatologic disorders.
  - Urinalysis, urine culture, and chest x-ray are to be repeated only if findings indicate they should be.
- o Imaging tests are guided by symptoms and signs. Typically,



areas of discomfort should be imaged—e.g., in patients with back pain, MRI of the spine (to check for infection or tumor); abdominal CT in patients with abdominal pain. However, CT of the chest, abdomen, and pelvis should be considered to check for adenopathy and occult abscesses even when patients do not have localizing symptoms or signs.

- **MRI is more sensitive than CT** for detecting most causes of PUO involving the CNS and should be done if a CNS cause is being considered.
- o Venous duplex imaging may be useful for identifying cases of deep venous thrombosis.
- o If blood cultures are positive or heart murmurs or peripheral signs suggest endocarditis, echocardiography is done.
- o PET may also be useful in detecting the focus of fever.
- o Biopsy may be required if an abnormality is suspected in tissue that can be biopsied (e.g., liver, bone marrow, skin, pleura, lymph nodes, intestine, muscle). Biopsy specimens should be evaluated by histopathologic examination and cultured for bacteria, fungi, viruses, and mycobacteria or sent for PCR testing.

### Treatment

- Treatment of PUO focuses on the causative disorder.
- Antipyretics (e.g., mefenamic acid, paracetamol) can be used. They

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should be used judiciously, considering the duration of fever.

**Key Points**

- Classic PUO is body temperature  $\geq 38.0^{\circ}\text{C}$  for  $> 3$  weeks with no ident-

ified cause after 3 days of hospital investigation or  $\geq 3$  outpatient visits.

- Identified causes can be categorized as infectious, connective tissue, neoplastic, or miscellaneous.

Evaluation should be based on history and physical examination, with particular consideration of risk factors and likely causes based on individual circumstances.

SHORT TUTORIAL

## What is Best to Eat and Drink when you have a Sore Throat?

Once a sore throat develops, it may be painful and difficult to swallow and is hard to know what to eat and drink.

Eating and drinking the right things can also reduce the pain of a sore throat and may even speed the recovery process. Avoiding inappropriate foods can prevent some discomfort.

**Foods and drinks to consume**

The best things to eat and drink with a sore throat are healthy, soft foods and soothing beverages with nutritional value. These foods and drinks include:

- **Frozen treats:** Fruit-based sherbet and popsicles, and even plain ice chips can help soothe a throat that feels inflamed.
- **Pomegranate juice:** Studies have shown that pomegranate juice may ward off infection and reduce inflammation.
- **Bananas:** A soft and healthful fruit, bananas will be gentle on a sore throat.
- **Chicken soup:** Researchers have found that chicken soup may have anti-inflammatory properties and help clear the airways, which can reduce sore throat symptoms.
- **Sage:** This herb has been used for healing purposes for centuries, and it may be helpful for sore throats.
- **Turmeric:** Used as a tea or in milk-based herbal blends. This spice is thought to have healing, antiseptic, and anti-inflammatory properties.
- **Honey:** Tasty and soothing, researchers have found this natural sweetener to be effective at fighting infection and healing wounds.
- **Ginger:** This multi-faceted spice can be used in many forms, including teas and powders. In addition to preventing nausea and

addressing many other ailments, studies have found that ginger has anti-inflammatory properties that may help sore throats by reducing mucosal edema and pain.

- **Tea:** Drinking a wide variety of warm, nonalcoholic teas and other beverages can offer symptomatic relief in sore throat.
- **Smoothies and yogurt:** Soft, moist foods that people can drink through a straw can help people get the nutrition they need while soothing their throats.
- **Well-cooked vegetables:** Carrots, cabbage, potatoes, and other vegetables can be helpful for people with sore throats, as long as they are cooked until they are tender.



- **Scrambled eggs:** Eggs are a good source of protein. When scrambled, they are usually soft enough for an inflamed pharyngeal mucosa to tolerate.

**Foods and drinks to avoid**

When a sore throat is making it difficult and painful to swallow, there are a number of foods and drinks to avoid. These include:

- **Crunchy, hard foods:** Foods that are likely to have a lot of sharp edges, such as crackers, dry toast, nuts, or raw vegetables, can make a sore throat more uncomfortable.

- **Citrus fruits and juices:** Even though many people turn to orange juice when they have a cold, doing so can actually make sore throats feel worse. Orange and other citrus juices and fruits are acidic, which means they can irritate the already tender and edematous mucosa of the throat.
- **Sour or pickled foods:** Foods made with vinegar or salt, such as pickles, can make the inflammation of a sore throat worse.
- **Tomato juice and sauces:** The acidic nature of tomatoes can make them a poor choice for people with sore throats.
- **Irritating spices:** While some spices may help a sore throat others, such as chilies, hot sauces, and nutmeg can make the inflammation worse.
- **Alcohol:** Drinks and mouthwashes that contain alcohol may cause stinging sensations in a sore throat. Alcohol is also dehydrating, which is not good for people with sore throats.
- **Tobacco:** Tobacco is hardly a food, but when suffering from a sore throat, it's best to avoid secondhand smoke as much as possible. People should also avoid smoking.

**Home remedies for sore throat**

A number of different remedies can help ease the symptoms of a sore throat. These include:

- **Staying hydrated:** Drinking lots of nonalcoholic liquids can keep the throat from drying out and hurting.
- **Gargling:** Rinsing the throat with warm salt water can reduce inflammation. Individuals should add salt to warm water in a ratio that works best for them.

*(Contd. on pg 4)*

**... Sore Throat** (Contd. from page 3)

- **Throat lozenges:** Cough drops and even hard candies may provide relief.
- **Humidity:** Dry air can make sore throats feel worse. Using a humidifier to keep the air moist can help.

**When is Medical Treatment Needed?**

Sore throats typically go away after a few days. Paracetamol and NSAIDs (like mefenamic acid) may reduce the pain of sore throat after a single dose, or regular doses over 2 days.

If a person has a sore throat that lasts for 6 days or more, especially if it is accompanied by a fever, they are advised to see a doctor.

If a sore throat is caused by a virus, or is a result of allergies/pollutants it can often be successfully treated with self-care and home remedies. The following symptoms are indications that a sore throat may be due to these factors:

- Cough
- Runny nose
- Raspy voice
- Conjunctivitis

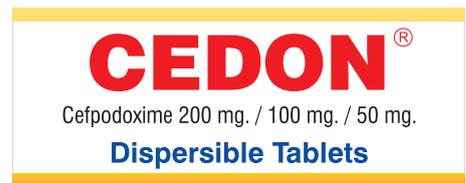
When sore throats are caused by

bacteria, they require medical treatment. Some adult cases of sore throat are due to strep throat, caused by the group A beta-hemolytic streptococcus (GABHS).

- Common signs and symptoms of streptococcal pharyngitis include sore throat, temperature greater than 100.4°F (38°C), tonsillar exudates, and cervical adenopathy. Cough, coryza, and diarrhea are more common with viral pharyngitis.
- Available diagnostic tests include throat culture and rapid antigen detection testing.
  - o Throat culture is considered the diagnostic standard, although the sensitivity and specificity of rapid antigen detection testing have improved significantly.
  - o The modified Centor score can be used to help physicians decide which patients need no testing, throat culture/rapid antigen detection testing, or empiric antibiotic therapy.
- Penicillin (oral therapy or one

injection of intramuscular benzathine penicillin) and amoxicillin (10 day therapy) are the first-line antibiotic therapies. Azithromycin is an effective alternative for those individuals unable to tolerate first-line therapy and also has a shorter therapy duration (5 days).

- Current guidelines recommend first-generation cephalosporins for persons with penicillin allergy, however some advocate the use of cephalosporins in all non-allergic patients because of better GABHS eradication and effectiveness against chronic GABHS carriage. A course of cefpodoxime (5-10 days) or cefixime (usually 7 days) can offer therapeutic benefit in pharyngitis and/or tonsillitis.



## Doctors Develop Novel Flu Test to Speed up Respiratory Treatment



**D**octors in Southampton have developed a novel way of using a swab test which can rapidly diagnose flu and other viral infections in patients with severe respiratory conditions - resulting in shorter courses of antibiotics and less time in hospital.

Developed by Dr Tristan Clark, a consultant in infectious diseases at University Hospital Southampton NHS Foundation Trust, and colleagues at the NIHR Southampton Biomedical Research Centre, the 'point-of-care' testing strategy can be carried out in hospital emergency departments and acute medical units.

It involves processing swabs immediately on a portable device combined with a rapid molecular test and, as samples do not need to be sent to the laboratory, results can be delivered within an hour as opposed to a number of days.

When evaluated in patients with acute respiratory illness, including pneumonia and exacerbations of asthma and

chronic obstructive pulmonary disease (COPD), it was observed that patients who had the 'point-of care' test got the right treatment for their lung condition faster.

Tests like this, which enable tailored and personalized medicine, have a major role to play in the fight against antibiotic resistance.



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