

TESTING FOR FOOD ALLERGIES

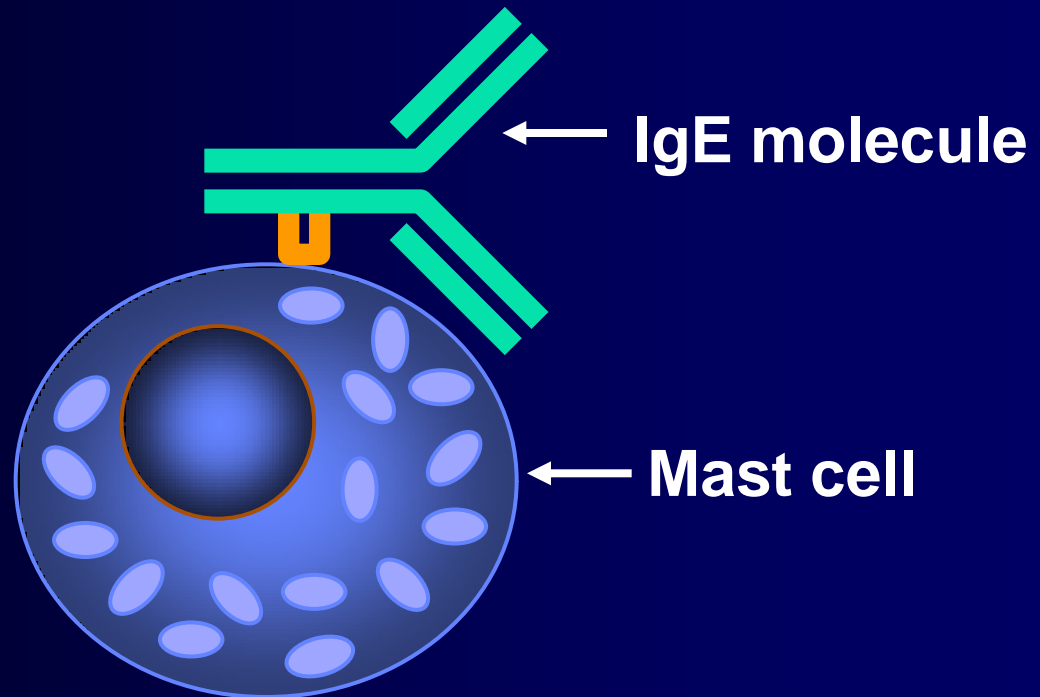
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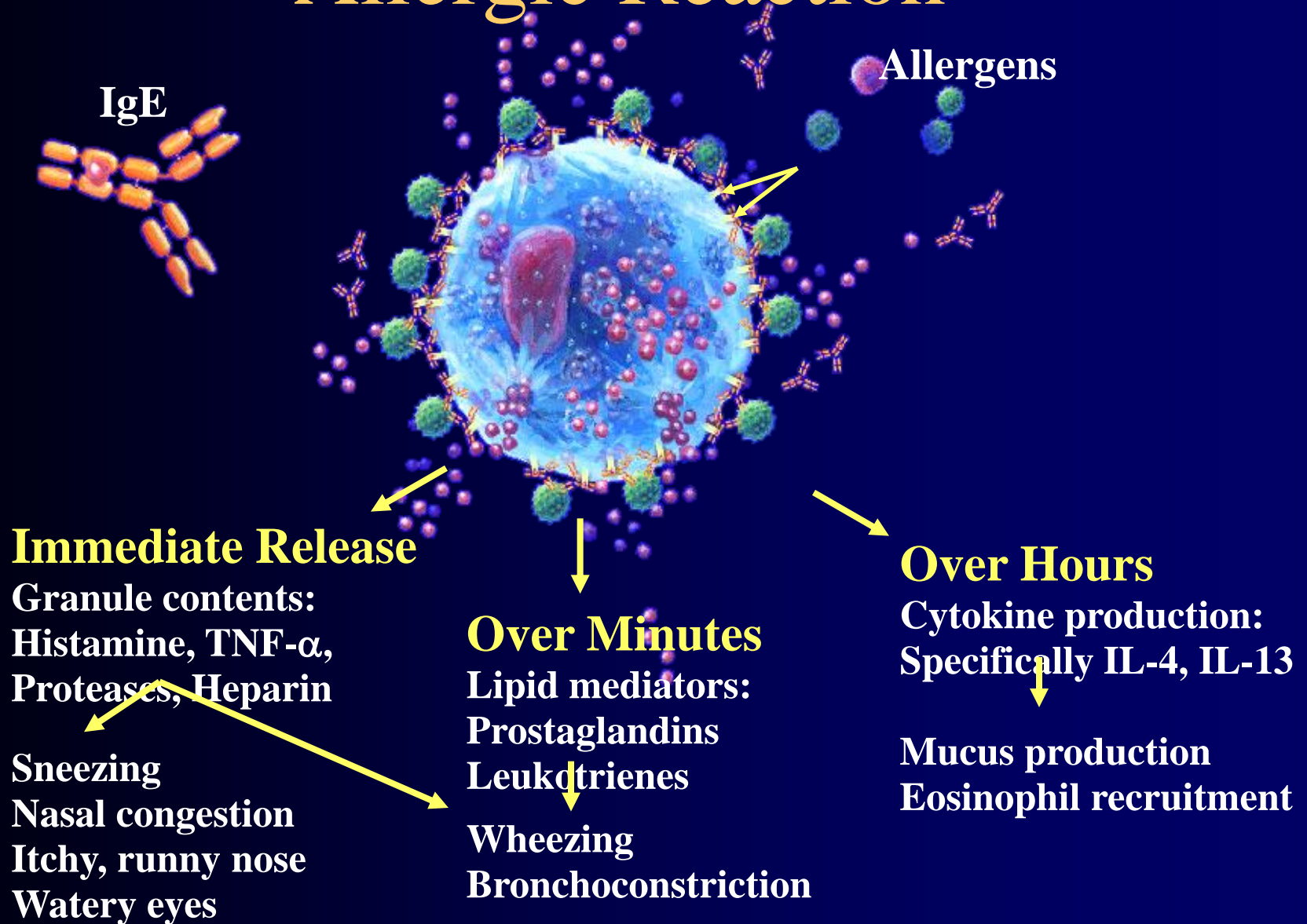
Objectives

- Understand what blood tests(RAST) and skin tests are measuring
- Learn what the size of a positive skin test really means
- Know what the level of RAST means
- Understand the role of food challenges
- Learn when re-testing is appropriate

IgE (Allergic Protein)



Allergic Reaction



RAST Testing

- RAST test measures the amount of IgE protein for a specific food that you have in your blood
- Does not tell you if that IgE protein is capable of causing a reaction

RAST Testing

- In general a negative RAST test is very good in ruling out a food allergy
- Greater than 50% of the time a positive test is not of any clinical significance
 - Chance that it is significant depends on the food being tested and the level of the RAST

RAST Testing

- RAST tests are often expressed in several ways
- Class 1 - 6 is not useful
 - arbitrary classification by labs
- Need to look at the levels expressed as KU/L

Positive Predictive Values(PPV) and Negative Predictive Values(NPV)

- PPV - chance that you are allergic with a RAST at this level
 - 95% PPV means there is a 95% chance you are allergic at this level
- NPV - chance that you are not allergic with this level of RAST
 - 95% NPV means there is a 95% chance that you are not allergic at this level

RAST - PPV and NPV

	95% NPV	95% PPV
Milk	0.8	32
Egg	0	6
Wheat	5	75% at 100
Soy	2	50% at 65
Peanut	85% at 0.35	15

RAST Testing

- IgE level does not correlate with threshold dose for reaction
 - Can have reaction with minute exposure even with very low RAST
- Level of RAST indicates probability of reaction not severity
 - Can have severe reaction even with very low RAST

Skin Testing

- Skin testing is looking for IgE to a specific food but also the ability of that IgE to cause a clinical reaction
- In general a negative skin test is very good in ruling out a food allergy (>95%)
 - except in children under 1 year

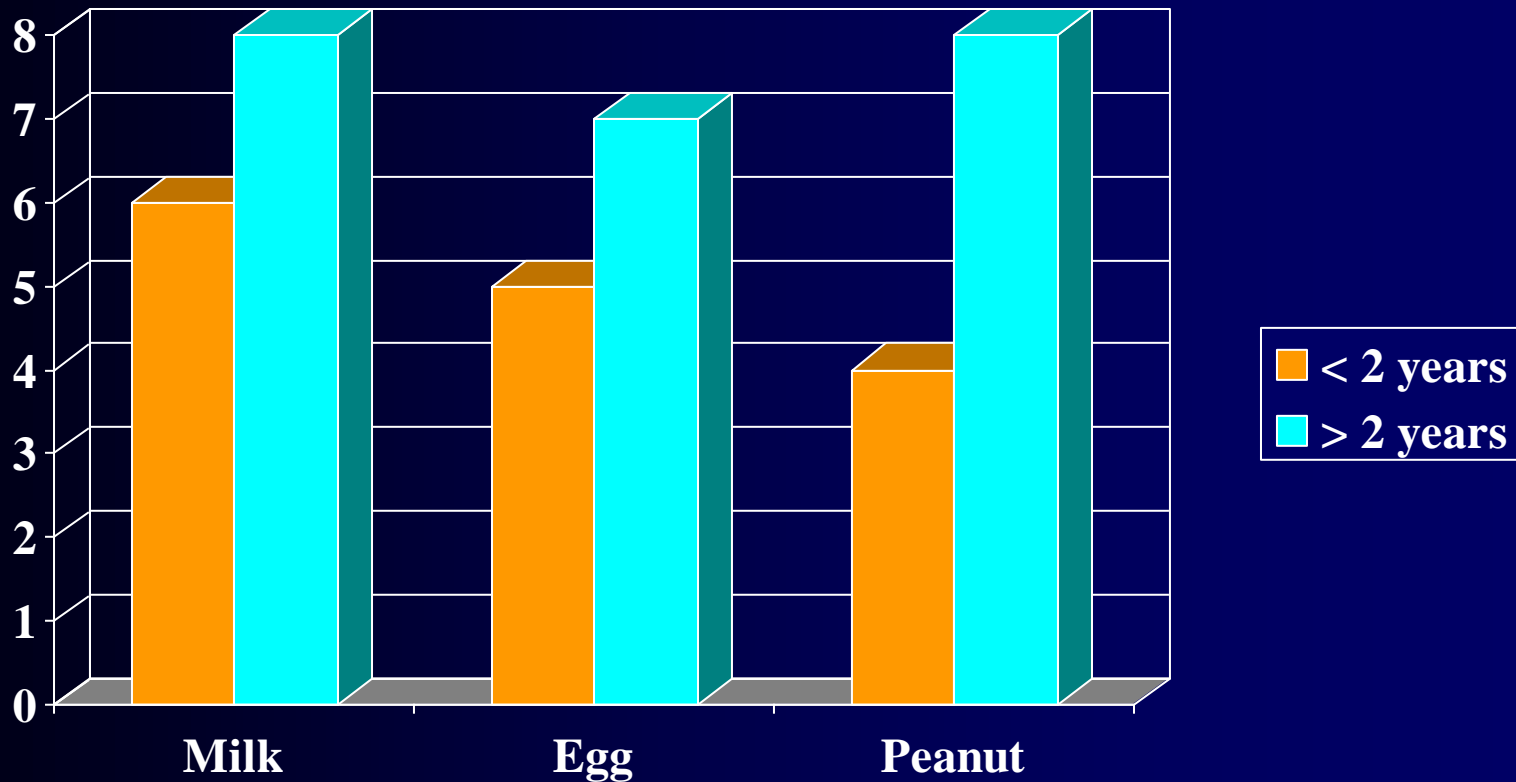
Skin Testing








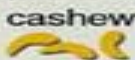


















































- 30 % of the time a positive skin test is not of any clinical significance
 - depends on food being tested and the size of the reaction
 - many people will get small nonspecific reactions to many or all foods
 - can be due to sensitive skin

Skin Testing

- Size of wheal indicates probability of reaction not severity
 - Can have severe reaction with a small skin test or a very mild reaction with a large one

Wheal Diameters 100% Diagnostic Of Food Allergy



If Allergic to:	Risk of Reaction to at Least One:	Risk:
A legume* peanut 	Other legumes peas  lentils  beans 	5% 
A tree nut walnut 	Other tree nuts brazil  cashew  hazelnut 	37% 
A fish* salmon 	Other fish swordfish  sole 	50% 
A shellfish shrimp 	Other shellfish crab  lobster 	75% 
A grain* wheat 	Other grains barley  rye 	20% 
Cow's milk* 	Beef hamburger 	10% 
Cow's milk* 	Goat's milk goat 	92% 
Cow's milk* 	Mare's milk horse 	4% 
Pollen birch  ragweed 	Fruits/vegetables apple  peach  honeydew 	55% 
Peach* 	Other Rosaceae plum  pear  apple  cherry 	55% 
Melon* cantaloupe 	Other fruits watermelon  banana  avocado 	92% 
Latex* latex glove 	Fruits kiwi  banana  avocado 	35% 
Fruits kiwi  avocado  banana 	Latex latex glove 	11% 

Food Challenges

- Gold standard for determining food allergies
- Given tiny amount of the food in question and observed for 20 minutes
 - If no reaction amount is doubled every 20 minutes until a full portion of the food has been eaten
- Usually takes 2.5 - 4 hours

Natural History

- Milk tolerance
 - 56% by 12 months
 - 77% by 24 months
 - 87% by 3 years
- Egg tolerance
 - 50% by 2 years
 - 75% by 3 years
- Peanut tolerance
 - 20% outgrow by 5-6 years

Follow-Up

- Re-evaluate for tolerance periodically
- Interval and decision to re-challenge:
 - Type of food allergy
 - Severity of previous symptoms
- Milk, egg, soy, wheat - retest yearly
- Peanut - retest yearly till 6 then every 2-3 years

Follow-up

- Skin prick test/RAST may remain positive even though the child has outgrown the allergy
- Amount the RAST declines may be more predictive of having outgrown the allergy than the level itself

Peanut Allergy

- 8% recurrence in people who have outgrown their allergy
- Recurrence higher in those who continue to avoid peanuts or who do not eat them regularly
- Recommended to eat peanuts several times per month and carry adrenaline for 1 year
- If avoiding carry adrenaline indefinitely

Take Home Messages

- A negative skin test and RAST test is good for ruling out a food allergy
- A positive skin test or RAST test does not mean you are truly allergic to that food
- The size of the skin test or RAST test tells you how likely you are to be allergic
 - does not tell you what the severity of the reaction will be or at what dose you will have a reaction

Take Home Messages

- Often foods in the same family will be positive on skin test or RAST but you are not necessarily truly allergic
- Food challenge is only definitive test
- Recurrence of peanut allergy can happen